QUARTERLY

THE CHICAGO MEDICAL SCHOOL

VOLUME 4, NUMBER 1 JULY, 1943

BUY WAR BONDS

QUARTERLY

Published Quarterly Under the Auspices of

THE CHICAGO MEDICAL SCHOOL

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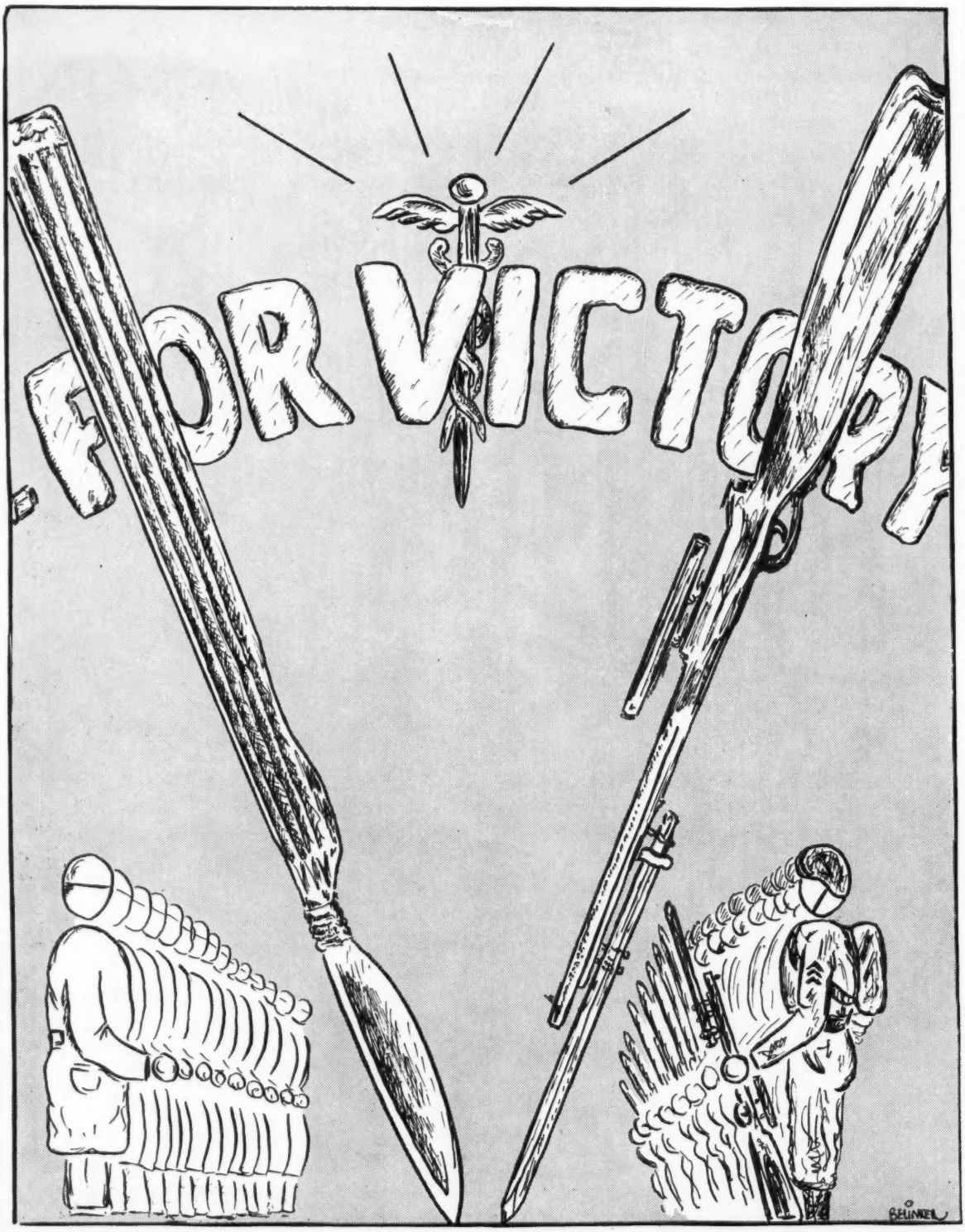
Dr. Taub has written two articles for this issue, one an allergy, which gives a complete, practical discussion of the subject that is especially valuable to the general practitioner, and the other on ascites, a subject of especial interest to the student. Mike Sacks writes a learned review of penicillin, the sulfa drugs' latest competitor. Dr. Bueker explains the workings of the electron microscope. A relatively late discovery, the Rh factor, is discussed by Milton Vainder. A thorough discussion of the subject of burns is presented by Dr. Harry Cooper, who presents all the latest methods of treatment of burns. Dr. Neiman reports on the results of the three year survey on the subject of tuberculosis control at The Chicago Medical School. Burton Rockliff, one of the newer contributors to the magazine, writes a short story on a very controversial subject. Our feature article reviews the progress made by our own Navy in the field of medicine. The latter half of the magazine is devoted to our alumni, our faculty, and those of our alumni and faculty who are serving our country in the armed forces. Last, but not least, don't forget that there will be a Junior Prom, a little early this year because of the speed-up program; but let's all turn out. Remember to BUY WAR BONDS AND STAMPS to help stamp out Fascism!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EDITORIALS

NAVY MEDICINE

War provides tremendous stimuli for all sorts of activity, and not the least of them is the great stimulation which medicine receives in time of war. The medical organizations of the armed forces of the nation are laboring incessantly to make this war as "safe" as possible for the fighting man. As in World War I, many new discoveries are being made in the present World War II. Life saving measures, such as the use of plasma right on the battlefield, the use of the sulfa drugs as prophylaxis against infection, and the newer techniques for the treatment of burns have decreased the mortality in war wounds to a considerable extent. The Navy medical personnel is representative of the highly trained and efficient organizations of the armed forces of America. The Navy hospital corpsman is the highly trained Medical jack-of-all-trades who does everything from simple first aid to removing an appendix with a bent spoon on an improvised operating table in a submarine in a rough sea. The Navy doctors are chosen from among the best doctors in the country, and their work is surpassed by none. Medical research goes on without interruption, and each new discovery means that wounded men have a better chance for recovery, for life.

The Navy doctors and medical personnel know their task, and they are performing their duties skillfully and uncomplainingly under the most trying of circumstances; and their efforts are not in vain, as is vividly shown by the low mortality of casualties at Pearl Harbor. We know we can depend upon these men and women to go the limit to save the lives of our boys wounded in combat. We must let them know that those of us who are still at home are behind them with everything we have by donating blood to the Red Cross for plasma, by buying war bonds and stamps, by writing to the men in service, and by sticking to our jobs.

STUDENT COUNCIL

For the past several years The Chicago Medical School has made great strides toward the improvement of its faculty, the quality of its student body, and its library and laboratory facilities. Yet, in one important phase of its development, improvement is definitely lacking. The student body lacks unity; and lack of unity breeds factionalism which has no place in a medical school, particularly our school. The several organizations within the school are each organizations within themselves and are not representative of the school as a whole. There are other groups within the school which are not recognized as such, but which, nevertheless, exert forces that certainly do not help toward unity. Such a situation is definitely undesirable and particularly detrimental to the welfare of the school as a whole. There must be unity of purpose and unity of action to maintain a healthy morale in the student body to further the efforts of the school to advance, especially in times such as we are now experiencing.

It has, therefore, been proposed that a Student Council be formed which will be representative of the whole student body, and whose sole purpose would be the promotion of the welfare of the student body and the furtherance of the aims of The Chicago Medical School. Such a body should be impartial and non-partisan, and should act only in the interests of the school and the student body. It would stimulate good fellowship among the students. It would also mean 100% support of school policies to further the interests of the school.

The need for a student body organization is obvious, and steps for the formation of such an organization should be taken as soon as possible. No school can consider itself complete without a representative student body organization. Therefore, The Quarterly invites comment and discussion on the subject, and urges every student of The Chicago Medical School to consider seriously the means of forming such a Student Council.

SOME COMMON DISEASES CAUSING ASCITES AND THEIR DIFFERENTIAL DIAGNOSIS

SAMUEL J. TAUB, M.D.

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Ascites, or hydroperitoneum, is not a disease in itself, but is rather symptomatic of some condition which causes an accumulation of fluid in the peritoneal cavity. It very commonly accompanies such conditions as congestive heart failure, portal cirrhosis, renal failure with edema, tuberculous peritonitis, and chronic constrictive pericarditis. One must also consider an acute general peritonitis as well as a neoplastic peritonitis.

The mechanism of edema and ascites varies in these different conditions. In general we may say that ascites is due to some pathological change in the blood vessel walls, along with an increase of pressure within the vessels, and sometimes an altered composition of the blood. These conditions are to be found as the result of inflammation, vasomotor paralysis, or obstruction. Now, since the venous blood of the intestines is returned by way of the portal circulation, we naturally look for the more common causes of ascites in morbid states of the portal vein. It must be remembered that inflammatory changes of local blood vessels due to pathological processes in the peritoneum or abdominal organs also tend to bring about ascites. One must always bear in mind that the causes of ascites are not confined to obstruction of the portal vein. Cardiac edema and ascites are due, for the most part, to the increase in the venous pressure and the slowing of the capillary blood flow, as a result of the failing power of the heart. Mechanical obstruction of veins may be due to either a neoplasm, an over-production of fibrous tissue, as in liver cirrhosis, or a thrombus. Such conditions cause an increased transudation of fluid into the peritoneal cavity and give rise to the symptom of ascites. The reasons for this increased transudation of fluid are multiple and may be considered for the most part to be due to the consequent rise in the intra-capillary pressure resulting from obstruction, but, in addition, there is also an increased permeability of the capillary walls. This increase of permeability is due to the impaired blood supply or, in the case of a new growth, may be due to the production of toxic substances as well. Ascites and edema due to renal disease is due to the reduction in the concentration of the plasma proteins and, consequently, there is a reduction in the osmotic pressure of the blood. This applies to chronic glomerulonephritis and to nephrosis. In acute nephritis the capillary wall is damaged and its permeability is increased. Therefore, proteins escape in excessive amounts.

The specific gravity and the color of the ascitic fluid may be of some help in differentiating the various conditions that give rise to ascites. For example, in heart disease, renal failure, and portal cirrhosis the ascitic fluid resembles a transudate and is usually clear, yellowish, and has a specific gravity under 1.015. On the other hand, in neoplastic peritonitis, acute general peritonitis, and tuberculous peritonitis the specific gravity of the fluid is usually higher than 1.015 since in these diseases we are dealing with an exudate. In these conditions the fluid also shows a much higher cellular response.

In the following paragraphs the author presents the case records of three different patients on his service, who had ascites as one of their main complaints.

CASE 1

This patient was a white male, age 52, who entered the Cook County Hospital on March 29, 1943, with the following complaints: pain in the pit of the abdomen, anorexia, dysphagia, weight loss, dyspnea on exertion, cough and weakness. All these complaints were of six weeks' duration.

A detailed history was obtainable only with difficulty because of language difficulty. The history, as elicited, was as follows: He was first taken ill 3 years ago. Symptoms of weakness, anorexia, dyspnea, and weight loss appeared gradually. He has been in the hospital on several different occasions and has had treatment. Now his symptoms have recurred and he was re-admitted to the hospital on March 29, 1943 for the complaints described previously. His cough is productive of a sputum which is not purulent or bloody. He is chronically constipated, has nocturia 1-2 times a night, and suffers from occasional headaches. He stated that occasionally he gets a sharp pain which starts in the lumbar region, bilaterally, and radiates down to the lower extremities. He has had no operations, and lues and G.C. are both denied.

Physical Examination

On physical examination we found a poorly nourished white male who appeared acutely ill. On ad-

mission his blood pressure was 96/62; temperature, 103°; pulse, 120. The temperature was septic in type, running a typical spiked course, highest in the afternoon and lowest in the morning. His lips and oral mucosa were cyanotic, the conjunctivae pale, the pupils round, equal, and reacted to light and accommodation. Small, discrete glands were palpable in both supraclavicular regions, posteriorly over the left scapula, and in both axillae. Examination of the chest revealed diminished resonance over both bases, but no rales. There was a widened area of mediastinal dulness. The abdomen showed the presence of shifting dulness, a liver enlarged to 5 fingers below the costal margin and slightly tender. The spleen was firm and palpable 3 fingers below the left costal margin. The rectal examination was negative. The laboratory work-up revealed the following information: Hemoglobin 57%; R.B.C. 3,780,000 (color index less than 1); white blood count 4,000; differential count, 82% polymorphonuclear leucocytes, 7% lymphocyctes, 11% monocytes. Macrocytosis, poikylocytosis and hypochromia were present. Non-protein nitrogen, 33; creatinine, 1.8. Kahn test on the blood was negative. The X-rays of the chest revealed a widened superior mediastinum and bilateral infiltration of the hilar areas. A biopsy of one of the lymph nodes in the axilla revealed typical Dorothy Reed cells, fibrosis, and eosinophilic infiltration.

Diagnosis

This patient had been receiving X-ray therapy as he had been previously diagnosed as a Hodgkin's disease. However, he no longer responded to this therapy, and since he already had a secondary anemia, the X-rays could not be pushed too hard for there is the danger of producing an aplastic anemia in such a patient, with death resulting from hemorrhage.

The ascites in this patient was probably due to portal obstruction due to the pressure of the glands in the portal system and the liver. In early Hodgkin's disease we must rule out infectious mononucleosis. This is best done by means of the test for heterophile antibodies. When the titre rises above 1:60, it is probably infectious mononucleosis, as in this condition the titre rises slowly during the first two weeks and may reach a value as high as 1:2000. In Hodgkin's disease the titre seldom rises above 1:60, and then it must be differentiated from serum sickness. This differentiation can be made with the Davidsohn absorption test, a heterophile antibody reaction, which, in serum sickness, is positive.

CASE 2

A white male, 61 years of age, was admitted to the hospital on April 7, 1943, with the following complaints for the past 2 weeks: enlarged abdomen, swelling of both legs, and increasing dyspnea. The patient's history revealed that he was well until 18 months ago when he began to be troubled by a persistent cough and "bronchitis". He was treated by his family physician for "heart trouble" and felt better under this treatment. One month later he noted a swelling of his ankles and this gradually spread upward to involve the legs. In a short time the abdomen, too, became enlarged. The patient was then admitted to the Cook County Hospital where his abdomen was tapped twice. On the first tap 2½ gallons of fluid were obtained and on the second tap, 1½ gallons. He remained at the hospital for one month and was then sent home. Three months later he returned with a recurrence of the ascites. He had also been subject to attacks of dizziness. There was no tremor and no history of any head injury. He complained of a ringing in his ears and a failing vision. There was no bleeding from the mouth or gums, but he did have a soreness of the tongue and a history of frequent sore throats and occasional hoarseness. He has never had his tonsils or adenoids removed.

On his last visit to the hospital irregularly shaped glands were noted in the neck. The epitrochlear glands were also palpable and these glands were firm, deep seated, and freely movable. On further examination it was found that large axillary glands were present. He has had frequent night sweats and has lost 45 lbs. during the past year. There was also dyspnea, orthopnea, and a cough which is only occasionally productive of sputum. There were no palpitations, or anorexia; he had diarrhea 2-3 times in a week, but no blood in the stools. There was urinary frequency 5-6 times a day but the urine was scanty in amount so that there actually was an oliguria. Nocturia was present 2 times a night. Venereal disease was denied. He had rheumatism of the right leg 23 years ago, and was treated for pleurisy 20 years ago.

Physical Examination

On physical examination we found: blood pressure was 128/65; temperature 98.6°; respirations 24. The pupils were round, equal, and reacted to light and accommodation, and the conjunctivae were pale. Hearing was impaired on the left side. There was a left nasal polyp, and the lips and mucosa were pale, but no ulcerations in the mouth were present. Enlarged lymph glands were present bilaterally in the neck, axillae, groin, and epitrochlear glands were also present. The chest examination revealed a few moist

rales over the bases of both lungs. The heart borders were within normal limits but systolic murmurs, nemic in type, were heard at the apex and the aortic area. The abdomen was tremendously protruding and an extensive collateral circulation was evident over the abdomen. Because of the tremendous fluid distention it was impossible to palpate the liver, spleen, or kidneys. There was a marked shifting dulness over the abdomen. Rectal examination was negative. The legs and ankles were markedly edematous. An abdominal paracentesis was done the day after admission and 7,000 cc. of a clear, yellowish fluid was obtained, specific gravity of 1.015. On palpating the abdomen after removal of the fluid the spleen was found to be palpable and extended below the umbilicus.

In this case we must differentiate an enlarged kidney by feeling for the splenic notch, and by the fact that the spleen is felt more superficially, and by percussing out the splenic dulness in order to see if it is continuous below the costal margin. Sometimes it may even be necessary to resort to a barium enema and x-ray of the colon. It is to be remembered that on such an x-ray if the colon is in front of the mass it is a kidney, if the colon is behind the mass it is spleen. In this patient we not only found this very large spleen, but, in addition, a large, nodular liver was also palpable extending down to about the level of the umbilicus.

On laboratory work-up the following information was obtained: hemoglobin 29%; R.B.C. 1,670,000 (color index slightly less than 1); white cell count 373,000; differential count, 1% polymorphonuclear leucocytes, 96% lymphocytes, 1% monocytes. Anisocytosis, poikilocytosis, one nucleated red blood cell, two blast cells, and a low platelet count were present. Non-protein nitrogen, 50; creatinine, 1.4; total blood proteins, 6.0; albumin, 4.7; gloubin 1.3. The Kahn test on the blood was negative.

Diagnosis

Chronic Lymphatic Leukemia.

Treatment

Usually x-ray treatment controls the disease for a time. If such treatment is not available, Fowler's solution by mouth may be tried. The x-ray treatment is to be given directly over the groups of enlarged lymph nodes, and enough should be given to reduce them to a normal, or to a near-normal size. It is preferable to irradiate one group of glands at a time.

Discussion

Chronic lymphatic leukemia is almost always diagnosed when the patient comes to ascertain the cause of his anemia and enlarged glands. At that time a moderate degree of splenomegaly is usually found. The blood picture reveals a moderate anemia, 50-70% hemoglobin, and a very high white cell count. This count may go up as high as 1,000,000 at times. The differential count usually shows that over 90% of the cells are small lymphocytes. In these cases the prognosis is invariably fatal, the average life expectancy being about 3½ years.

CASE 3

This patient was a white male, 54 years of age, who complained of a swelling of the abdomen for 6 weeks, a swelling of the legs and the genitalia for 6 weeks, and constipation for 3 weeks. This patient's history revealed that he was first admitted to the Cook County Hospital in January, 1943 and was discharged about two months ago. The complaints on admission, at that time, were the same as those of the present admission. His abdomen was tapped twice, 4½ gallons of fluid being removed at the first tap, and 2 gallons being obtained on the second tap. He has now returned to the hospital with an exacerbation of the original complaints. The stools are pale in color, although occasionally they are brown. The appetite is poor; nausea and vomiting have been present for past 4 weeks. Dyspnea is present on exertion, and there is difficulty in urination. Venereal history was denied. He stated that he has had from one-half to one gallon of home brewed beer every day for many years.

Physical Examination

Physical examination revealed an emaciated white male who does not appear acutely ill. The pupils were round and equal and reacted to light and accommodation. The conjunctivae were pale, the sclera icteric. The chest was normal, and no cervical lymphadenopathy was present. The heart borders were within normal limits; the rhythm was regular. A systolic murmur was found at the apex and A_2 and P_2 were accentuated. The blood pressure was 180/90. The abdomen was greatly distended; no abdominal pulsations were present, but an extensive collateral circulation was visible over the anterior abdominal wall. The abdomen was tapped and 2 gallons of a greenish-yellow, thin fluid, with a specific gravity of 1.015, was obtained. The spleen was not palpable. After removal of the fluid the liver could be palpated 3 fingers below the costal arch. The liver was very tender, hard, irregular, and nodular. The genitalia were very edematous on admission, but the edema has already receded.

(Continued on page 37)

PENICILLIN: One of the Newer Bacteriocidal Agents

MICHAEL SACKS

Arising out of a very diverse series of investigations, a new group of anti-bacterial agents has appeared on the medical horizon to aid man in his constant fight against bacterial infection. Among these are penicillin (A & B), gramicidin, tyrocidin, actinomicin, citrinin, streptothricin, gliotoxin, proactinomycin, and propamidine. Each day sees the discovery of some new substance with much sought after anti-bacterial properties. Investigators are spurred on by the desire to find compounds which will equal and surpass the sulfone derivatives in their efficacy in combatting disease.

The search began with the work of Dr. Rene J. Dubos. He began by looking for an organism which would attack the polysaccharide capsule of type III pneumococcus. Because these polysaccharides resemble the hemicelluloses, it seemed very likely that such organisms could be found amongst rotting plant cells. Such an organism was found in the cranberry bags of New Jersey. It was a gram negative spore-forming, rod-shaped bacillus to which the name Bacillus S III was given. Dubos obtained an enzyme from this organism by culturing it in a mineral medium in which the sole source of carbon was the polysaccharide. The enzyme was then concentrated without loss af activity and was found capable of protecting mice and monkeys against pneumococcus type III but not against types I and II.

In subsequent experiments Dubos was able to isolate a gram positive, spore-forming bacillus which was capable of lysing gram positive cocci. Thus the principle of "anti-biosis," the unfavorable effect of one cell's life processes on those of another, had again been utilized. Pneumococci of all types, staphylococci, and alpha, beta, and gamma streptococci all underwent lysis. Meningococci and other gram negative cocci were not attacked. The enzyme from this isolated bacterium caused autolysis of the susceptible organism. In addition, it was found that the soluble factor was bactericidal towards these same organisms and inhibited their growth. The concentrated preparation of this soluble factor was named gramicidin by Dubos.

Dubos and Hotchkiss isolated several species of aerobic sporulating bacilli from soil, sewage and manure, as well as authentic strains obtained from type cultures which exhibit antagonistic activity against unrelated organisms. Cultures yield an alcohol soluble, water insoluble fraction which is bactericidal for most gram positive and gram negative organisms. This substance is known as tyrothricine. Tyrocidin, one of the two products which have been separated from tyrothricine, is bactericidal for gram positive and gram negative organisms, and gramicidin, the other substance separated, is a protoplasmic poison for gram negative organisms.

At about the same time that Dubos started to track down gramicidin in this country, Fleming, of England, obtained a substance from the mold Penicillium notatum possessing anti-bacterial activity against certain organisms and having a very low toxicity. Here, too, the therapeutic possibilities of this substance were immediately grasped and further investigations were undertaken. This work received tremendous impetus from the wonderful results which were obtained from the newly introduced sulfonamide compounds. The Oxford group of investigators, Chain, Florey, Jennings, Gardner, Abraham, and Orr-Ewing, started with Fleming's odd discovery that more positive cough plates for pertussis could be obtained if a diluted extract of Penicillium was added to the media on the cough plate.

H. W. Florey separated the active principle which is now known as therapeutic penicillin. This was found to inhibit the growth of staphylococci completely in a dilution of one in 25 million and partially in a dilution of one in 160 million, and, just as important, to be virtually harmless. In experiments on mice to demonstrate its toxicity, no ill effects were observed although large doses were given. At the same time, doses administered to human beings seemed to be innocuous.

Thus, the hope emerged that it was possible to maintain a sufficient concentration of this substance in the blood stream to inhibit the organisms of disease. The prospects became even more alluring when penicillin (the name given to the extract from the mold) was found to be many times as active a bacteriostatic substance as the sulfone derivatives, which in themselves had marked one of the greatest advances in modern therapeutics. Up to the present time the original "therapeutic penicillin" has been purified but has not, as yet, been reduced to its crystalline form, as has

been gramicidin. The older preparations of penicillin are more effective on gram positive organisms. However, the purer preparations of more recent date, seem to be able to affect some of the gram negative organisms as well.

In the production of penicillin, (13) the mold is cultured on a modified Czapek-Dox medium, which consists of the following ingredients:

Sodium Nitrate	3.0 Gm.
Potassium Acid Phosphate	1.0 Gm.
Potassium Chloride	0.5 Gm.
Magnesium Sulfate-7H_2O	0.5 Gm.
Ferrous Sulfate-7H_2O	0.01 Gm.
Glucose	40.0 Gm.
Water q.s. ad	One liter

The media and the containing vessels are sterilized and then inoculated with a few drops of a spore suspension. The culture is incubated at 24°C. After a few days the fluid, containing the growing mold, is drawn off. The penicillin is then extracted with ether, amyl acetate, and certain other organic solvents from the aqueous solution of the media, whose pH has been adjusted to 2. The penicillin may then be separated from the organic solvent by shaking with a phosphate buffer or with water whose pH has been adjusted to between 6 and 7. The initial extraction must be carried out quickly and at a low temperature because the penicillin may be destroyed. However, once it is separated from the organic solvent, it is relatively stable and may be kept for some days in this form. 2% brown sugar added to the medium seems to give a maximal titer in 8 days. Extraction was made as the salt or as the free acid from organic solvents in making standardizations. The Oxford group has worked out a method of growth for large scale production. Abraham found that the production of the mold does not take place anaerobically and that the mold grows best at temperatures at 24-25°C. Sterilization is important since these investigators found that certain bacteria destroy the substance. These investigators have also described a quick method of assay for therapeutic penicillin.

The non-pyrogen purified penicillin is a deep reddish-orange fluid in dilute solution with a faint characteristic smell and a bitter taste. The crude media as described above, contains between one or two units per cubic centimeter. The dried purified therapeutic material has an activity of 40 to 50 units per mg. Penicillin may be stored as the strong aqueous extract at a pH of 6-7, saturated with ether. It is better stored by drying the substance by the lyophilic method and keeping it in a desiccator.

Chemical analysis (14), and a careful study of the various properties of these compounds, has been pushed in order to facilitate the possibility of synthesis of these compounds and their clinical applications. By means of absorption, reduction, and the use of various solvents, a barium salt of penicillin has been isolated. It appears to be homogenous as shown by chromatographic analysis. Its activity was 450-500 units per mg. The molecular weight of this compound is about 645 with an empirical formula of $C_{24}H_{32}O_{16}N_2Ba$. Structural analysis has revealed the existence of one carbonyl, one latent carbonylic, two acetoalcohol, and at least five carbon methyl groups. There are no reducible double bonds. Penicillin is very sensitive to oxidizing agents. It has been shown to be relatively unstable in dilute acids, alkalies, primary alcohols, and various heavy metals.

Study of the biologic properties of penicillin has shown that its bacteriostatic power against streptococci and staphylococci is much greater than that of the sulfa drugs, when tested under optimal conditions (13). Saturated watery solutions of sulfapyridine and sulfathiazole show no complete inhibition on an assay plate, whereas penicillin at 1:500,000 dilution gave an appreciable clear zone.

The action of penicillin on streptococci and staphylococci, unlike that of the sulfa drugs, is only influenced to a minor extent by the number of bacteria to be inhibited. Even when the cultures are inoculated with several millions of streptococci or staphylococci per cc., much of the multiplication of these organisms may be completely inhibited by penicillin, in a concentration as low as 1:1,000,000. With smaller inoculations, the inhibition will occur in even higher dilutions. This property of penicillin is of great importance in the treatment of heavily infected wounds on which the sulfa drugs seem to have but little beneficial effect.

The bacteriostatic action of penicillin against streptococci and staphylococci is not antagonized to any appreciable degree by hydrolytic protein breakdown products, products of tissue autolysis, or pus substances which annul completely the bacteriostatic action of the sulfa drugs *in vitro*. This makes possible the successful treatment of infections which show production of pus. Local applications of strong solutions are innocuous to tissue cells. Florey reported that the purest preparations then obtainable (3/20/42) completely inhibited the growth of Staphylococcus aureus at a dilution of between 1:24 and 1:30 million. The sodium salt of a less pure compound is ineffective after intravenous injection of 20 mg.

Penicillin has been used effectively in the experimental treatment of lesions of the eye produced by Staphylococcus aureus (16). Corneal ulcerations which developed in the untreated eyes of the rabbits were completely inhibited by the action of penicillin. Sulfathiazole was shown to give unsatisfactory results, while sulfacetamide gave beneficial effects. Penicillin has been found to lyse cells of B. abortus, Cl. welchii, and Staphylococcus aureus in dilutions of 1:300,000, 1:300 and 1:800,000 respectively (17). Chain and Florey found the substance to be very effective against anaerobic bacilli. Powell and Johnson (19) compare sulfathiazole and penicillin for action in mice and showed that 69% of mice treated with penicillin survived, 45% of mice treated with sulfathiazole survived and 23% of untreated controls survived after infection with Staphylococcus aureus. Tillet and Cambier (20) found that sulfa resistant strains of pneumococci injected into mice were destroyed by penicillin, while gramicidin gave variable results, and sulfa drugs had no protective action.

Hobby, Mayer, and Chaffee (21) investigated the mechanism of the action of penicillin. They found that the dilution necessary for bacteriostasis was of the order of gramicidin rather than that of the sulfa drugs. Pneumococci, Streptococcus hemolyticus, Streptococcus viridans, staphylococcus, meningococcus, gonococcus, B. subtilis, Cl. welchii were all susceptible in that order. H. influenzae, B. coli, B. typhosus, B. dysenteriae, B. proteus, and B. paratyphosus were not susceptible. Considerable variation was found among different strains of the same species. No lysis of the bacteria was seen and no penicillin was destroyed in the process *in vitro*. Penicillin appears to be effective only when multiplication takes place, indicating that enzyme systems are probably interfered with. Penicillin is toxic to mice in doses of 1.6 gm/kilo body weight. This dose produced choking, gasping, followed by prostration and death. Guinea pigs could not be killed. Humans experienced no untoward effects after taking 160 mg. for six days. No toxicity was found when applied to the human eye.

H. Gold (op.cit.) reports that penicillin interferes with the growth of organisms but does not destroy living cells. He further reported that the material does not affect leukocytes. This is an important biologic property because of the role of the leukocytes in infection.

Hobby and Meyer, in later experimental work, showed that mice infected with hemolytic streptococci and with pneumococci were protected by 1.5 mg. of subcutaneous penicillin against 1,000,000 lethal doses. They showed that the number of bacteria killed *in vitro* rose in geometric proportion, as the time increased arithmetically. A point is finally reached when the drug does not act. In one experiment, 99% of a streptococcus culture was killed regardless of the strength of penicillin used. There was, however, an actual decrease in the number of organisms of a susceptible strain, while the action of the sulfa drugs was merely the prevention of multiplication. Neither blood, serum, benzoic acid, or peptone inhibited the action. The drug thus has its most effective action against gram positive organisms in extremely small dilutions *in vitro*.

Abraham and Fletcher compared the action of the sulfa drugs and that of penicillin. They showed that penicillin does not diminish the amount of oxygen taken up by a culture, nor does it kill or lyse cells. It is bacteriostatic, has a greater action against streptococci and staphylococci, is not influenced by the number of bacteria, is not antagonized by breakdown products, and is not toxic to leukocytes. The sulfa drugs, on the other hand, are bacteriostatic, influenced by the number of bacteria, losing efficiency with increases in concentration, are antagonized by pus, and are slightly toxic to leukocytes.

Roberts and Cain et al., (15) have recently isolated a new fraction from P. notatum which is antibacterial. This is insoluble in liquid solvents and readily separated from culture media by adsorption on benzoic acid. This substance has the properties of a protein and is effective against gram-negative and gram-positive organisms. It is a light yellow powder soluble in water but not in fat solvents, and is stable when dry. It has been produced by using the same media used for "therapeutic penicillin." It is, however, adsorbed on benzoic acid "cakes," dissolved in alcohol, and fractionally extracted with crude acetone and water.

This substance, called penicillin B, is highly toxic and causes death in mice. Despite repeated attempts, it could not be detoxified. Its importance lies in the fact that in extremely high dilutions, in the presence of carbohydrate, it is bacteriostatic and bactericidal for E. coli, A. aerogenes, E. typhi, and V. comma. The possibility that this substance has a toxic fraction which can be separated from the bactericidal fraction is an open question. It remains one of the most potent substances yet isolated and much more will be heard from penicillin B.

(Continued on page 34)

WE KEEP ON LOOKING FOR SMALLER THINGS

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It would be interesting to be able to see molecular changes and to correlate the findings in physiology and biochemistry with a type of histology where the finest ultrastructures would be visible. Imagine being able to see what happens in so fine a structure as a muscle fiber or to see an impulse pass over a nerve. If ever this phenomenon comes to pass, it will make possible a kind of meeting of all the biological sciences. So we keep on looking for methods which will enable us to see smaller things.

The important factor about a microscope is its resolving power. An object may be magnified 1,000-5,000 times, and yet nothing will be seen unless the instrument used has good resolving power. The wave length of the light used is important in obtaining proper resolution as is demonstrated by the fact that with ordinary white light, one cannot have good resolution with a magnification much above 1,500.

The resolving power of a microscope, *R.P.*, may be defined as the smallest distance, *d*, by which two objects may be separated and still be discernible as two objects. Resolution is high if the distance between the obejcts is small, R.P. $\propto$ e/d. The distance, *d*, varies directly as the wave length and inversely as the numerical aperture, N.A., or $d \propto \frac{0.61\lambda}{2\ \text{N.A.}}$ for the optical microscope. One may decrease *d* by decreasing the wave length, λ, or by increasing the N.A. Actually, one cannot see anything with the optical microscope which is less than one-half to one-third of the wave length of visible light, i.e., approximately 0.2-0.3μ. By using ultra-violet light, quartz lenses, and a photographic plate, one can obtain images of objects as small as 0.1 μ. Red blood cells, as an example, are between 5-8μ in diameter.

As mentioned above, one can photograph an object of 1,000 A.U. (.1μ) with the ultra-violet microscope. However, to obtain an image of an object such as a virus, which has a length of approximately 100 A.U., the wave length of light used will have to be 200 A.U. This is in the region of the X-ray and, therefore, outside of the ultra-violet spectrum. As these X-rays cannot be focused, they cannot be used.

De Braglie pointed out several years ago, that electrons have wave-like characteristics; that they

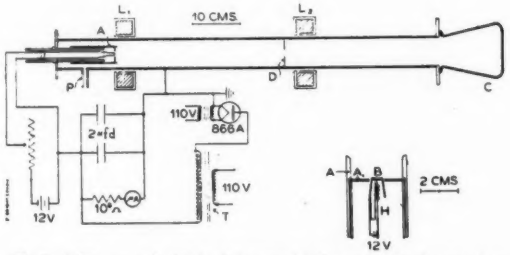

Fig. 1 A diagrammatic sketch of the essential features of the electron microscope. A, tissue holder (cathode) support; A_1, inner shell of same; B, nickel cathode; C, fluorescent screen; D, diaphragm; H, heating filament for cathode; L_0, objective magnetic lens; L_2, ocular magnetic lens; P, pumping port; T, transformer. The remainder of the letters and symbols are standard usage in vacuum tube technique.

represent a kind of collapsed wave length. Shortly thereafter, the Bell Telephone Laboratories developed a cathode ray tube which made electron optics possible, and, after some modification of the tube, gave rise to the electron microscope.

The laws of object and image distances used for the optical microscope apply equally to the electron microscope but the theoretical resolving power of the latter is 1,000-1,000,000 times that of the former. The magnifications of the electron microscope bear a direct relationship to the voltage used. Up until the present time, successful work has been done with magnifications up to 30,000, which is almost within the visible range of the viruses.

The electron microscope, shown in Figure 1, belongs to Dr. G. H. Scott at Washington University. It consists of a metal tube along which two lenses, L_1 and L_2, are free to slide and rotate. Each lens is constructed of hundreds of wire coils enclosed in soft iron sheaths. To focus the instrument, the current through the lenses is altered which, in turn, will alter the strength of the magnetic field. The magnetic fields of the lenses interact with the stream of electrons traversing the tube and focus them on a fluorescent screen.

At the end of the tube opposite to the screen is the cathode, *A*, which is heated by a coiled tungsten filament. The top of the cathode, which is made of nickel, is flat and carefully polished to serve as a tissue holder. The object to be examined is placed on this stage which is heated. A high potential is then im-

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THE Rh FACTOR IN RELATION TO ERYTHROBLASTOSIS FETALIS AND HEMOLYTIC TRANSFUSION REACTIONS

MILTON VAINER

In 1939, Levine and Stetson reported an unusual case of intragroup incompatibility of blood in humans and first called attention to the role of the fetus in causing iso-immunization in a pregnant woman. In 1940, Landsteiner and Wiener described an agglutinable factor in human blood demonstrable by immune serums produced against the red blood cells of the Indian macaque (Macacus Rhesus). This agglutinogen, called the "Rh (Rhesus) factor," was proven to be present in the red blood cells of about 85% of the white population (Rh positive persons) and absent in the rest of the population (Rh negative persons).

In several cases of hemolytic transfusion accidents, it has been pointed out that the Rh factor was to blame. Transfusing Rh negative persons who have developed an iso-immunity to the Rh factor with Rh positive blood will cause a hemolytic action which may be fatal. Examination of the mechanism involved here reveals the following facts: When an Rh negative female mates with an Rh positive male, the Rh factor is inherited by the fetus as a dominant Mendelian character. In those rare instances in which fetal erythrocytes pass the placental barrier into the maternal circulation. The positive Rh factor evolves a reaction which results in the formation of antibodies to protect the mother against the Rh positive factor. Those anti-Rh agglutinins which are so produced are soluble components of the blood serum and enter the fetal circulation where they lyse the Rh positive corpuscles, a manifestation of the condition known as erythroblastosis fetalis.

During the course of the pregnancy, should this same female require a blood transfusion, there will be considerable danger attached to the use of her husband's blood. The anti-Rh agglutinins present in the mother's blood stream would hemolyse the paternal Rh positive red blood cells. This has been the cause of death in many transfusion accidents in males and non-pregnant females who had previously been transfused.

CASE HISTORY

At the Massachusetts General Hospital (3), a 54 year old woman had had four uncomplicated pregnancies from the ages 19 to 30. She was suffering from chronic anemia and had received her first transfusion of 600 cc. of blood from her husband in 1937 with no reaction. In October, 1940, a second transfusion of blood from her husband was given which had to be discontinued after only 325 cc. had been administered because the patient developed a sudden chill and fever. In December, 1940, a diagnosis of congenital hemolytic jaundice was made for the first time, and on January 4, 1941, in preparation for a splenectomy, a third transfusion of 500 cc. of blood from a friend was given with no reaction. On January 7, 1941, the husband was again tried as a donor for a fourth transfusion, since ordinary cross-matching showed no incompatibility. After 200 cc. of blood had been given, a severe hemolytic reaction occurred with hemoglobinuria, hemoglobinemia, and fever. The next day a friend was used for a fifth transfusion and again, after 300 cc. of blood had been given, the patient experienced a severe hemolytic reaction. The patient was finally submitted to a splenectomy on January 31. During and after the operation a sixth transfusion of 500 cc. from a friend, and a seventh from her brother were given in immediate succession. The latter transfusion had to be discontinued after 300 cc. of the blood had been administered because of the occurrence of another hemolytic episode. Despite this, the patient made a fair recovery.

Subsequent typing of the patient's blood and the blood of the various donors revealed that the husband's red blood cells were group O and Rh positive, while the wife's red cells were Group A and Rh negative. Of the donors, the blood used for the third transfusion, from which no reaction occurred, was group O and Rh negative. All the other bloods used were Rh positive, and reactions followed the transfusions of these bloods. The first two transfusions from the husband were presumably the stimuli for the iso-immunization.

Transfusion accidents of this sort can be prevented by testing the donor's blood for the presence of the Rh factor by using the following method: A 2% suspension of unknown erythrocytes in normal saline is made. Two drops of this suspension are placed in a 7mm. test tube (Kahn type). To this are added 1-2 drops of a neutralized (neutralized with Witebsky-soluble A and B factors) anti-Rh serum,

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MANAGEMENT OF BURNS

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Burns are reactive and destructive changes occurring in tissues due to excessive heat, chemicals, ultraviolet radiation, and other agents. Multiple types of treatment and medication are advocated. The fact that there are champions with every treatment is an indication that the last word has not been said for the therapy of burns. It is the purpose of this article to review the different methods of management, in order to facilitate the proper choice, when the occasion presents itself.

For practical purposes, burns can be classified into three degrees, according to the depth:

First degree, consist of superficial erythema.

Second degree, characterized by vesiculation and bleb formation.

Third degree, destruction of the entire thickness and may involve underlying tissues.

This classification considers only the depth of the wound. However, equally important is the extent of involvement. Burns which involve more than 1/10 of the body surface are serious and should be hospitalized.

A rough estimate of the involved body surface may be obtained if the entire body surface is divided into percentages:

Legs and buttocks.....33.1/3%
Trunk and neck 33.1/3%
Arms and head 33.1/3%

In children, smaller areas of burns give much more serious symptoms as compared with adults. Also, burns of the face, head, and neck are more serious than burns on other parts of the body.

First degree burns:

Tissue damage is minimal. There is an erythema from resulting superficial capillary dilatation and capillary change of a mild degree. These burns usually result from hot fluids, exposure to sunlight, or ultraviolet radiation. When a considerable portion of the body is involved, there may be marked pain and systemic symptoms. As a rule these cases recover in 24 to 48 hours. In the treatment of first degree burns, the main object is to alleviate pain. This can be done by the application of the following preparations: household remedies, such as soda bicarbonate paste, corn starch, weak cooled tea (Chinese method), cold water; antiseptic and analgesic remedies, such as nupercainal ointment, butysin picrate (do not use more than twice and watch for allergy), sulfathiazole ointment or powder, sterile vaseline, unguentine dressing, or cod liver oil ointment.

Second degree burns:

In these burns, there is a more marked local tissue disturbance with capillary wall destruction resulting in edema and bleb formation. These burns are the result of scalds, flames, and touching of hot objects. If 60% of body surface is involved, there is a fatality in 98% of cases. Treatment of these burns will be discussed with the therapy of third degree burns.

Third degree burns:

In these burns, there is a definite destruction of tissues involving not only the skin but also the deeper structures. In addition, there are present symptoms which influence mortality, such as shock, intoxication or toxemia, and infection.

No effort is made to excise burned areas. Destroyed tissues are allowed to come away by themselves by the process of tissue necrosis. When this happens, you have a granulating tissue base which must heal by secondary intent or skin grafting.

The etiology of toxemia or intoxication has been discussed in articles too numerous to mention. Here, again, there are champions of certain theories as to why toxemia develops. There are three theories which the author feels are the logical answers to the etiology of toxemia.

1). Split protein theory maintains that as a result of the burn process, split proteins arise which exert a severe depressant effect on the central nervous system as well as upon other cells, and produce complications as severe shock, prostration, ulceration of gastro-intestinal tract, fever, and delirium. A very logical outgrowth of this theory was the treatment of burns by the coagulation of the burned area. It is obvious that if these areas are liberating toxic proteins, progressive coagulation of the area would prevent such release and diminish or eliminate toxic effects. This coagulation treatment is now typified by the tannic acid treatment of burns.

2). Protein imbalance theory supplanted the theory of dehydration or abstraction of water and tissue fluid.

It is now agreed that such patients require blood plasma, or serum, or whole blood for the prevention of protein imbalance rather than fluid imbalance.

3). Aldrich and Firor theory. These authors attach considerable importance to infection producing intoxication. If this is so, then the treatment of burns by means of bacteriostatic agents is a logical choice. Aldrich first advocated the use of gentian violet, later the triple dyes. Now the use of sulfonamides has been advanced either in powder, liquid, or ointment form.

As one can see, any one or all of the previous mentioned theories can be factors in the etiology of intoxication. These causes can all be present, either working at one time or at different times. They can also work in the following order; primary shock, secondary shock, acute toxemia, and septic toxemia with a possibility of one condition overlapping the other.

Since shock is usually present in severe burns, it is important to understand some of the symptoms one encounters. According to Rear Admiral Wakely, shock can be classified as primary or secondary. Primary shock occurs immediately after the injury. It may be likened to a fainting or syncopal attack. There is present a sudden fall in blood pressure, feeble pulse, and clammy skin. This form of shock is rarely seen in men of the fighting forces unless there are other injuries present in addition to the burns. It is seen in marked fashion, however, in women, children and old people who have been removed from burning and bombed houses, and there can be no doubt that the psychological factor plays an important part in its production.

Secondary shock is a state of collapse which in itself is responsible for 70-80% of deaths from burns. As a rule it is manifest within two hours after injury. There may or may not be a demonstrable interval between recovery of the patient from initial shock and development of secondary shock. Symptoms are a fall in blood pressure, subnormal temperature, and clammy skin. These symptoms are much more marked than in primary shock.

The treatment of burns can be classified into two parts, the general treatment and the local treatment. Under general treatment, the important condition to treat is shock whether it be primary or secondary. The measures here consist of rest, quiet, elevation of the bed, warmth, both internal and external, and sedatives. In severe cases oxygen should be given. Where only a small amount of oxygen is needed, nasal catheters are useful. In the more serious cases, tents or masks are indicated.

The most important element in shock therapy is the restoration of the blood volume to normal. Here, plasma is the important factor and should be given according to the need. Various methods have been worked out to estimate the amount of plasma needed. Some of these methods are quite complicated; therefore, for practical purposes, the two simplest will be discussed.

Berkow described a simple method which is satisfactory and especially adaptable where laboratory facilities are not available. It is as follows: The dose of plasma may be calculated according to the extent of the body surface involved and accordingly, 50 cc of plasma should be given for every per cent of the body's surface affected by the burn. Thus, if a patient has a burn which involves 20% of the body surface, that patient should receive about 50 times 20, or 1000 cc.

The other method, which is also very simple and adapted when laboratory facilities are available, has been recommended by Harkens. The method is as follows: An hematocrit reading is taken and 100 cc. of plasma are administered for every point the hematocrit reading exceeds the normal of 45. For example: If the reading is 60, 15 times 100 cc. would equal 1500 cc., which would be the total amount of plasma required.

The plasma required should not be given all at once. Some authors recommend giving 1/3 the amount the first two hours, 1/3 the next four hours and 1/3 the next six hours. Others recommend small plasma transfusions at 6, 15, and 30 hour periods, and a large transfusion of 900 cc. at the fortieth hour period, when they consider the unbalanced permeability has been adjusted and the body is ready to maintain the fluid.

In addition to giving blood plasma, it is advisable to administer about 1000 cc. of isotonic solution of sodium chloride per day. This is necessary to compensate for the loss of large amounts of fluid through the burned area with a depletion of chlorides. Too much fluid is as harmful as too little. Therefore, proceed cautiously and do not be too energetic about forcing fluids.

We now come to the local treatment, and here is where there are champions for the different types of therapy. Each method that has been used has its good points as well as its bad points. The criteria for an ideal treatment of severe burns as recommended

by Rivdin and Johnson is as follows: (a) Bacterial contaminants should be removed or their growth inhibited. (b) Subsequent bacterial contaminations prevented. (c) Treatment carried out with a single non-shocking procedure so that the disturbance to the patient will be minimal when the systemic reaction is severe. (d) Material applied to the burned area should not damage the living cells remaining, nor should it be toxic if absorbed in the quantity necessary to cover any given burn. (e) Burned areas must be protected against trauma (bed clothes rubbing). (f) Covering should not mask underlying infection. (g) Covering should be easily removed if skin grafting is necessary. (h) Lastly, covering should require a minimum of attention.

Tannic acid, triple dye, and sulfadiazine are the medications which adhere closest to the previous mentioned criteria and their methods of use will be discussed in the following paragraphs.

For burns of a minor nature and where a small percentage of the body surface is involved, one can use tannic acid, sulfadiazine jelly or ointment. Since tannic acid cannot be used about the eyes, face, genitalia, or hands it may be advisable to use either sulfadiazine ointment or sulfanilamide powder. Wakeley has used the sulfanilamide powder with great success and in the following manner. Sulfanilamide powder is applied to the burned area until a frost is formed. This is covered by several layers of gauze and tulle grass. (Tulle grass is mesh curtain cut to about 6x4 in. in size and impregnated with a mixture of 99 parts of vaseline with 1 part of balsam of Peru). The gauze is removed the following day and fresh powder applied. If the wound is found clean at this time then a redressing is not necessary for the next 5-7 days. If septic areas are found then the wound is cleansed with an antiseptic solution and powder applied. These cases must be watched daily.

It must be remembered that before any medication is applied to a burned area, the preliminary treatment is important. This consists of removing all grease and oil from the burned area with either benzine, ether, soap, or Fantus ether soap. Under general anesthesia, all loose and blistered skin must be removed and the burned area may or may not be swabbed with warm saline. The burned area is next dried and ready for the eschar medicament.

Tannic acid 5-10% solution is sprayed on the burn for 15 or 20 minutes. Some men spray every 15-20 minutes until the area is tanned. After this a swab saturated with 10% Silver Nitrate is brushed across the area and along the edges. This seals the burn and darkens the tanned area. When a dark tanned coating develops, the tanning treatment is over except for watchful waiting.

The tanned areas are not covered with any dressings, but the patient is enclosed in a hot air or heat cradle. The eschar is inspected daily for signs of infection. This eschar will remain for about two weeks, when it will begin to peel off. When the eschar is off, there is present a granulating base which will either heal spontaneously or necessitate skin grafting. Burns in the folds like the cubital fossa, axilla, popliteal space, and face must have skin grafting to minimize scarring so that there is very little disturance in function. Where there is granulation without epitheliazation, skin grafting must be done. If infection should develop beneath the eschar, it must be removed either by warm saline compresses, manual removal, or hot boric dressings. The infection is then treated with sulfanilamide powder.

The triple dye method has the same preliminary technic as the tannic acid. After the burned area is prepared, a mixture of 2% gentian violet, 1% brilliant green, 0.1% neutral acriflavine in aqueous solution is sprayed on the wound. (Triple dyes have a specific action against gram negative organisms and gram positive streptococci). This is dried and a second application applied, which in turn is dried. Usually two applications are sufficient to produce a supple tan. These areas are not covered with any dressings, but the patient is placed in hot air or heat cradle. The eschar is watched daily and any moist areas receive another application of the triple dye. At the end of 10 days, the eschar usually loosens and falls off leaving a healed wound. If the burn has been extensive, healing will not have taken place, but a large granulating area will be exposed as we encounter in the tannic acid treatment. The follow-up, therefore, becomes the same.

The newest treatment described by Pickrell of Johns Hopkins and enjoying great success is the use of 3.5% sulfadiazine in an 8% aqueous solution of triethanolamine. This is especially applicable to burns where less than 40% of the body surface is involved. The technique is as follows:

The solution is sprayed on the burned area with a hand atomizer after great care has been exercised in utilizing aseptic technique. Blebs and loose burned tissues are removed. The burned areas are sprayed every hour the first day; every 2 hours the second day;

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A THREE YEAR TUBERCULOSIS SURVEY

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The question of tuberculosis control among medical students has been a subject that has interested student health officers for many years. It has been of interest in schools other than medical schools because of the general concern with a disease which still accounts for too many deaths. It is of primary interest in medical schools because there we deal with a special risk group of individuals from two points of view. First, the students are exposed to the disease to a much greater degree than are other individuals of the same age group. Second, the classical predisposing conditions for tuberculosis are more apt to be present among medical students than among others of a similar age group.

At The Chicago Medical School, the Department of Student Health has followed the perfectly obvious precept that an early tuberculosis is the type most easily amenable to treatment. It has been shown by others and been accepted by all that at present the simplest and most direct methods of showing early tuberculosis is by a chest roentgenogram. On this basis it is possible to make a diagnosis which is classified as minimal, moderately advanced, or far advanced depending upon how much of the lung tissue is involved in the pathologic process. We must bear clearly in mind that this is a roentgenologic diagnosis and not a clinical diagnosis. We are implying by the latter the presence of clinical signs and symptoms. It is a well established fact that tuberculosis, even when present in a relatively marked degree, does not always manifest itself clinically.

If we are to use the routine chest roentgenogram for the purpose of preventing the disease, we must concern ourselves primarily with minimal tuberculosis. The situation is not as uncomplicated as it would appear superficially. Two points come up for discussion. First, the purpose of this type of prophylaxis is to prevent or at least reduce the incidence of moderate and far advanced tuberculosis and not to prevent tuberculosis as a disease. Specific prevention of tuberculosis by use of a vaccine such as BCG is neither a universally practiced nor a universally accepted procedure. Secondly, just what is minimal tuberculosis? When there is a definite localized parenchymal infiltrate and the tuberculin test is positive, we find no difficulty in making the diagnosis, even when the patient is asymptomatic. However, roentgenologists describe the so-called "apical cap" (a thickening of the pleura over the apex of the lung), and the so-called apical mottling (small dispersed infiltrates in the apex almost invisible except to the practiced eye).

Are these manifestations of minimal tuberculosis? We can answer that question only partially. Stiehm, at Wisconsin, has shown that certain individuals having only one or the other of the above mentioned roentgenologic findings have virulent tubercle bacilli in their gastric washings. This is not true in all cases. Therefore, we may safely make the conclusion that at least in some cases a roentgenologic report of this type should be interpreted as tuberculosis. Autopsy reports bear out this attitude since some of these infiltrates and pleural thickenings are tuberculosis while others are non-specific. It becomes obvious then, that in the interests of safety, an individual who presents such X-ray findings must be considered as having minimal tuberculosis until proven otherwise.

How can a suspect be proven to be "otherwise"? Two methods suggest themselves. One is almost absolute, the other is relative. The first is a tuberculin test. A negative Mantoux test with 1/100 dilution of OT is almost certain evidence that we are not dealing with a tuberculous process. Should the Mantoux be positive, then the second method is used; an examination of the gastric contents for tubercle bacilli. The reason for this latter procedure is twofold. First, should the findings be positive, it establishes the diagnosis, and second, the individual should be isolated as a public health measure.

This report concerns itself primarily with the results of 3 academic years of observation on a group of Chicago Medical School students. This group is of interest because it is the first about which we have data for a period as long as 3 years, and also of interest since certain members were vaccinated with BCG. The group was first tested at the beginning of the Sophomore year at which time there were 67 students, 63 were tested with tuberculin with the following results:

Negative	15
Positive	47
Questionable	1
Total	63

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THE DIAGNOSIS OF ALLERGY—PROCEDURES AND LIMITATIONS

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(Read before the EFFINGHAM COUNTY MEDICAL SOCIETY. Effingham, Ill., May 12, 1942).

The diagnosis of allergic diseases becomes simpler as more information concerning the underlying mechanism of allergy becomes available. Allergy is a very dramatic phenomenon, but nothing about it should be regarded as strange or mysterious.

Positive skin tests and a marked sensitiveness to serum are part of the picture of serum disease. The patient who recovers from pneumonia gives a positive skin test to the specific pnuemococcus carbohydrate. Patients infected with Ascaris show a positive skin reaction to the extract of Ascaris. The same is true of trichinosis. When animals or human subjects are treated with repeated doses of some foreign protein, a positive skin reaction to that substance can be developed.

The manifestations of allergy are different in different persons. Certain children or adults show an eczema, while in others the same kind of exposure results in another form of allergy, like hay fever or asthma. The answer seems to be that certain tissues can become more sensitive than others. There are patients who are skin sensitive to pollen who have hay fever; but there are others who are skin sensitive and have no nasal symptoms, and whose only complaint is that of asthma occurring only during the pollen season. The sensitiveness is more marked in one case in the nasal mucosa and in the other in the bronchial mucosa. The condition known as contact dermatitis is especially of interest because the individual has a sensitiveness which is limited only to the skin.

One practical value of these observations lies in the light they throw on diagnosis. Skin tests are sometimes positive when there is no clinical evidence that the particular substances cause trouble and sometimes negative when the patient is definitely sensitive. It is thought that these negative tests depend on the fact that the patient's sensitiveness is limited to the mucous membranes and does not affect the skin. This idea is confirmed by the observation that some patients during their first year of hay fever, have no positive skin tests, but when tested again in succeeding years, are found to have positive skin tests which steadily increase in size. Skin tests may be positive when there is no evidence that the patient is clinically sensitive to that particular substance. This again emphasizes the distinction between skin sensitiveness and sensitiveness of the body as a whole.

The observation that blood eosinophiles increase after eating specific foods to which one is sensitve may in the future prove exceedingly helpful in the diagnosis of food allergy. A detailed history is of the most importance in arriving at a diagnosis of an allergic condition. If one will take a careful history and unfold all the circumstances under which attacks occur, the diagnosis will often appear. Exact dates are important. For instance, sneezing attacks or "colds" occurring at the same time each year in March and April would lead one to suspect an allergy to trees, in May and June to the various grasses, while in August and September to the various weeds and airborne molds.

The author has, in several cases, uncovered the causes of angioneurotic edema and urticaria by carefully taken histories which indicated, in one case, phenolphthalein in a cathartic mixture as the cause, and quinine, aspirin, and codeine in cough mixtures in other cases.

DIAGNOSTIC METHODS

Allergy is essentially a special field within the division of internal medicine. Because allergic manifestations involve the child as well as the adult, and because they may involve various parts of the body, we find the rhinologist, the ophthalmologist, the dermatologist, the pediatrician, indeed, every practitioner of medicine and surgery at one time or another, face to face with an allergic problem. The clinical problem in these instances involves an etiological diagnosis. Before one finds the answer to the question as to what produces a patient's allergy, one must be certain that the condition under consideration is actually an allergic one. The determination, insofar as it is possible, of the presence of the allergic state should precede the employment of the various diagnostic methods intended to reveal etiologic factors.

Experience teaches us that certain clinical conditions, such as asthma, hay fever, and eczema may be all

allergic. Furthermore, we know that certain skin conditions, the reactions following the administration of serum and drugs, may also be allergic. We have come to learn points in differential diagnosis between skin conditions that are allergic and those that are not allergic, such as contact dermatitis, and seborrheic dermatitis, or nasal conditions such as allergic rhinitis, and sinusitis which is nonallergic. The point to be made here is that it is imperative to ascertain from the start that the condition about to be investigated on an allergic basis is actually likely to prove allergic.

CRITERIA FOR DIAGNOSIS OF ALLERGY

Heredity. The naturally allergic patient invariably gives a family history of allergy. Multiple personal allergic manifestations are not uncommon in the same individual. Thus, the asthmatic patient may present a history of hay fever, eczema or hives, or the patient with allergic rhinitis may be found to have typical asthmatic breathing.

Eosinophilia is found in the blood, sputum, and in the nasal secretions. This finding is of special value in doubtful rhinologic and eye cases where the history and the appearance of the nasal mucosa and conjunctivae are not sufficient to form a definite diagnosis.

Allergic patients usually give positive *skin reactions* when the skin is tested with properly prepared extracts.

Response to epinephrine is a good therapeutic test for allergy. Relief from annoying nasal or asthmatic symptoms following the administration of epinephrine or ephedrine constitutes additional proof of allergy.

Clinical exposure. Symptoms many be brought on or exaggerated by the ingestion of certain foods, or by the intranasal and conjunctival applications of raw material or of extracts of such materials (pollens).

DIAGNOSTIC METHODS IN THE STUDY OF THE ALLERGIC PATIENT

History. The allergic history forms one of the most useful parts of an allergic investigation, and in experienced hands, will frequently supply clues and leads of prime importance in the solution of the patient's difficulty. It necessitates intimate study of the patient and his habits over a long period of time. The following is a useful form for taking an allergic history:

A. *Chief Complaint.* This is the statement of the chief annoying symptoms as presented by the patient.

B. *Analysis of the Chief Complaint.* The age of the patient, the mode of onset of the initial attack, the relation of the time of onset (day or night), the duration, severity, and frequency of attacks, and the progress up to the last attack should be ascertained. The patient's own opinion of the causative or contributing factors, such as idiosyncrasies to foods, sensitivity to dust, is valuable evidence. Detailed analysis of various symptoms, such as (a) eye symptoms of lacrimation, itching, pain, redness, (b) nasal symptoms, such as coryza, congestion, obstruction to the nasal passages, itching, sneezing, (c) pulmonary symptoms, such as dyspnea, wheezing, cough, expectoration, (d) skin symptoms, such as weeping, itching, redness of the skin, and the location and distribution of the lesions, (e) the character of the nasal secretions, which may be watery or purulent, are of great value in making a diagnosis. The effects of irritants, such as tobacco smoke, camphor, tar, paint, and the seasonal occurrence of symptoms are important. Sensitivity to drugs, such as aspirin, phenolphthalein, insulin, quinine, belladonna, the halogens, metals (such as mercury and arsenic) is also noteworthy. The effect of environment and climate has a definite diagnostic worth.

Social History. The occupation of the patient and his family are of great importance as, for example, animal contacts in peddlers and stablemen, contact with flour in bakers and housewives, the use of insect powder by janitors, contact with drugs, such as flaxseed, salicylic acid, caroid in pharmacists, the use of chemicals such as formalin and phenylhydrazine by laboratory workers, exposure to furs and dyes in furriers. Certain foods, such as fruits and vegetables are seasonal, and may be responsible for the seasonal occurrence of allergic symptoms. The acquisition of new bedding, pillows, furniture, rugs, new garments, and new toys (stuffed bears may contain rabbit fur) may be important in establishing the etiology. Mohair obtained from goat hair is used for upholstering automobile seats, railway cars, and furniture. Rugs are made from cotton, wool, goat hair, and occasionally, as in Oriental rugs, from camel hair.

The patient's habits and hobbies may be of importance. Inquiry should be made as to the type of face powder, soap, perfumes, and dentifrices the patient uses, which may contain rice, orris root, or corn. Contact with such plants as poison ivy, primrose, chrysanthemums, and exposure to heat, cold, or sunlight may have a bearing on the patient's symptoms.

Past Medical History. Inquiry should be made concerning diseases in infancy, such as eczema, hives, cyclic vomiting, gastric symptoms, bronchitis, repeated colds, asthma, and migraine. The presence of past medical conditions, operations, and the administra-

(Continued on page 32)

ENIGMA OF THE SANE

BURTON ROCKLIFF

When the war started I was removed from the Reserve and placed in active service as a Captain. After a few months at camp, I discovered that one of my second lieutenants had graduated the year before from my alma mater. So it was quite natural that when the annual Alumni Banquet, given for the graduating class of The University, came around that March, I obtained leave, and attended it with Jerry Lobin. That was the lieutenant's name.

The banquet was a repetition of the few others I had gone to, except for the khaki among the business suits, and the cold winds of March instead of the pleasant, green warmth of June. It wasn't until later, in the lounge, when I was talking with Professor Burns, my old English Literature teacher, that I discovered that Lieutenant Lobin had been the valedictorian of the preceding graduating class. The professor was very enthusiastic about him.

"You know sir," he bubbled, "that young man is one of the most brilliant students I have ever had. His talents are unmistakable, a natural leader, with the intelligence to lead wisely. It almost breaks my heart that a boy like that . . . "

He paused, regarding the thin cigar he held in his small-boned, sensitive hand. Then he looked at me thoughtfully. "Something has been turning over in my mind lately, and I have almost shaped it into a complete idea. I want to tell you about it, and get your viewpoint. Do you mind?"

I, of course, showed the proper interest and he flicked a long ash off his cigar and continued. "Let us consider this lad, Lobin. He graduated at the head of his class, but more important than that, he has the talents and training right now to become who-knows-what? A statesman? A great lawyer? Perhaps a leader of men and nations. I sincerely believe that there is something in that boy that is of great value to society and to this nation. If not today, then in five years, ten years—what does it matter? What does matter is this: if he is sent to war and is killed, society will lose something it can ill afford to lose in these critical times. He is a resource, a trained, human resource, and why shouldn't we conserve him as we do our natural resources?"

He paused, and puffed his cigar. "What I am trying to say is that if certain individuals can be deferred because they are indispensable to the war effort, why can't we be more far-sighted and defer men who will be indispensable to the peace effort? Society suffers horribly from a war, not only materially, but culturally. There are not very many really exceptional men in the Arts and Social Sciences. Men in the field of the Natural Sciences are desperately needed; so their full use is understandable. But why must outstanding, or potentially outstanding, men such as the lieutenant be sacrificed? Don't you think that Joyce Kilmer could have contributed so much more to the culture of our society had he lived, than any contribution he made as a soldier before he was killed in the last war? To me, it seems downright wasteful and short-sighted."

Now fully warmed to his theme, he leaned towards his companion. "Besides, there is another factor that supports my argument. The type of sensitive, intelligent man I am considering does not make the best kind of soldier. War requires a certain primitiveness, a sort of regression on the part of the individual. Civilization may lie very thinly on the masses, but a person like Lobin could never overcome the impact of the horror and shock of battle on his personality. He has come to hate the brutalities of war, and to regard it as fruitless and barbaric. Consequently, he does not make a good soldier. Therefore, why make him one when he could be so valuable elsewhere, or at another time?"

Professor Burns settled back and gazed reflectively at the layer of smoke above him. I reached for a cigarette, and lit it to give me a little time to get my thoughts together. The old boy had a point, and, even though I felt he was wrong, it was hard to put my reasons for thinking so into words. Finally, I said, "Frankly, Dr. Burns, I've never given such an idea any thought, simply because it has never occurred to me. Much of what you have said is unfortunately true. War takes a terrible toll, and its effects are more far-reaching than any one of us can comprehend. But I don't think your plan would make much of a dent in the total cost of this war, and whatever it gained wouldn't be worth the price."

"In the first place, you haven't included the feelings of these men you would defer. Since these men are intelligent, they know what principles are involved

in this conflict, and what the stakes are. They must realize that no culture or freedom is worth preserving if it is not worth fighting for. If they kept from fighting, what would be the subtle effect of their inactivity upon their personalities? There is need for intelligence in fighting, and right now it is the fight that is important. The participation of these men may mean little to the total effort and final outcome, but it would mean very much to them."

"Let's say that we took a certain group of superior men and prevented them from taking part in the fight because we wanted to preserve their valuable capabilities. The rest of us would then be fighting not only for our homes, our freedom, our culture, and our government, but also for this group of men. They would have to look on while their fellow countrymen fought for all the things that they themselves believe in, and must have, to develop their talents. That is too much to ask of them for the saving of a few valuable minds in the midst of mass sacrifice.

"And I think if you look at the positive side, the benefits derived from the participation of these men, you will be convinced that the value to society of your plan grows even smaller. When these highly intelligent men get right into the fight, it has a significance to the average citizen and soldier that volumes of explanation would never accomplish. It is a symbol of their utter belief in the necessity and justice of our fight when our best thinkers shoulder arms against the enemy.

"As for the kind of soldiers they will make, I'm not sure that I know. Your claim that they are too sensitive to fight well is purely theoretical, and I doubt whether it holds true on the field.

"And *your* claim that the safekeeping of picked groups of gifted men would be bad for everybody's morale is purely theoretical, too!" continued the professor, somewhat impatiently. "My plan is a very logical one for assuring a supply of leaders and intellectuals for our society, and that is the most important thing, to my mind, in the long run."

Our discussion ended soon after without either of us changing our minds, and I went back to the camp that day with Lieutenant Lobin.

Several months later we were transported to the South Pacific, where my company saw action in New Guinea, taking part in a slow advance on the Japanese. The men were mostly all green troops, but they had special training in Australia. We would hack our way through the living green that is the New Guinea jungle, advancing against the Japs in the daytime, then falling back at twilight to a prepared line of foxholes in clearings. The Japs were superior to us at night fighting in the jungle, but we could hold clearings and airfields against them any time.

I had come to know Lieutenant Lobin much better. He was a unique person—sensitive, sympathetic, and a very good writer. He and his sergeant had become good friends, which was not too strange considering that they were both young fellows, and that military caste doesn't mean much in a foxhole. The two were quite unlike, but I guess they each found something in the other to like and respect.

One day we captured an airfield and beat the Japs back into the jungle beyond. When twilight came we fell back to the field and dug foxholes. Our casualities had been fairly high that day, the enemy having fought us viciously all the way. Every clump of foliage, every large tree had to be flanked, peppered with machine-gun fire, and blasted with grenades before we could advance. I checked the casualties, and when I came to the lieutenant he reported the sergeant missing. It seems that he had lost sight of him during the twilight retreat. But men had become separated from us during other retreats, and had found their way back to our lines in the darkness. And since no one had seen the sergeant hit, I told him not to worry. They were both clever, well-trained officers, able to take care of themselves and their men.

The Japs were so close to us that our men would shout insults at them, hoping to infuriate them into attacking. It seldom worked—the Japs would just answer in kind, but with hardly the same imagination or wealth of vocabulary. But some of them spoke English surprisingly well. This night, the Japs were in a mean mood, because they had suffered heavy losses, and had lost the airfield to boot. They stopped answering our comments upon their ancestry about eleven o'clock.

The sergeant hadn't returned, but there was still a good chance that he was lying low until we attacked in the morning. But when dawn came we saw something that tightened our jaws. The sergeant was there—spread-eagled against a tree, and unrecognizable except for his stripes which had been ripped off his uniform and pasted on his bare chest with his own clotted blood. You just can't imagine what they can do to a man and yet not kill him. We knew he was still alive, because we could hear him groaning weakly through his bloody, tongueless mouth.

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MEDICINE IN OUR NAVY

D. HALPERN AND M. WOHL

When American troops engage in an amphibian assault upon Axis-held territories, whether on the islands of the Pacific or in the soon-to-come Second Front, it is the Navy Medical Corps which renders first aid, returns the injured to action, or sends them to the rear for further care. Since modern warfare has appropriated the whole earth for its battleground, Naval Medicine has had to prepare itself for the diagnosis, prevention, and treatment of a host of strange and unfamiliar diseases. It is, moreover, the responsibility of the Navy Medical Corps to prevent epidemics of such diseases as are spread easily under the crowded conditions in which troops live and fight. Finally, when injuries are received in the course of battle, it is the duty of the Navy Medical and Hospital Corps to render swift and effective medical aid aboard ship.

The scope of Navy medicine is broad. Cases vary from immersion-foot due to long exposure in frigid waters to dehydration from days in the hot sun; from burns to underwater blast injury. Diseases may be as prosaic as influenza or as uncommon as pinto or carate. Divers must be treated for bends, and fighter pilots for blocked ear. In any case, the Navy Medical and Hospital Corps must be equipped, trained, and organized to carry out its appointed task—"To keep as many men at as many guns as many days as possible."

Since the war began, our Navy has made many advances in the prevention and treatment of infection and disabling injuries. Noteworthy among these are the introduction of Sulfa drugs, vaccination against Tetanus and Yellow Fever, improved methods of treating burns, diagnosis and treatment of air embolism in divers and air pilots, the use of mass miniature chest X-rays for investigation of tuberculosis, the establishment of industrial hygiene units in Navy Yards and naval industrial plants, the organization of mobile base hospitals, and the efficient placement of medical supplies and facilities aboard ship.

In the armed invasion of enemy shores, medical services are rendered by the Marine Hospital Corps. Three non-commissioned Hospital Corps men go with each company to serve as Company Aid men. They approach to a point 200 yards from the front where they can administer such first aid to the wounded as checking hemorrhages, dressing wounds, giving sulfa drugs, splinting fractures, and preparing emergency identification. Next ashore is the Battalion Aid Station which consists of two Medical Officers and twenty Hospital Corps men. This unit sets up a station, sends out stretcher parties, checks dressings, treats shock, applies Thomas' splints, and prepares the wounded for evacuation. The Battalion Aid Station serves a group of about 900 men, following the men inland about 600 yards from the front. Remaining aboard ship is the Medical Company which consists of six Medical Officers and eighty Hospital Corps men who are prepared to establish a complete 72 bed hospital. Of this group, a collecting party now lands with its mechanized equipment including jeeps, ambulances, etc. This party travels forward to advanced battalion aid stations where it gives further medical care and sorts casualties according to severity of injury. Minor casualties are sent back to the front. Others are evacuated by boat to transports and hospital ships. If the invasion is going well, other units of the medical company come ashore and set up the 72 bed hospital. Under the conditions of battle, first attention is given to the treatment of rifle and shell wounds, shock and compound fractures. Other duties involve field sanitation and hygiene, water purification, insect control, and personal hygiene.

(Courtesy Chicago Sun)

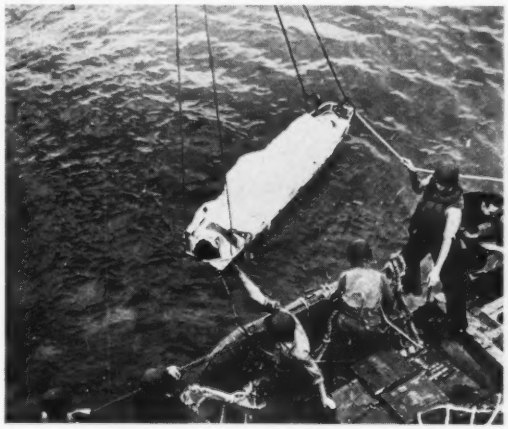
The new Navy medical center at Bethesda, Md.

Before an engagement, the Navy provides each man with an emergency packet of sulfadiazene tablets and powder. In the event of injury, the tablets are swallowed and the powder sprinkled into the wound. This simple treatment has markedly diminished the incidence of wound infections as compared with that which obtained during the last war.

Studies of blast injuries suffered during immersion

in water have led to the formulation of a better course of action for men who are thrown into the sea to the designing of a new type of life preserver. Thus, it has been found that men who lie on their backs are injured much less severely than those who assume a prone or side position while swimming. Moreover, it was discovered that the greatest damage occurs when a forceful, sudden compression wave followed by a forceful, sudden rarefaction wave strikes the soft muscular abdominal wall. A new type of life preserver has been designed which extends lower down than the ordinary one and thus offers the required protection.

The evaluation of the status of patients exposed to immersion blast is still a serious problem, although some advances have been made. Pathological exam-



(Courtesy Chicago Sun)

Transfer of wounded soldier to a ship for complete medical attention

inations reveal that the main lesions are hemorrhages and perforations in the intestinal wall. The hemorrhages vary in size from small petechiae to ecchymoses which involve considerable lengths of intestine. The perforations, often multiple, vary from minute punctures to blowouts half an inch to an inch in diameter. Such injuries have a varied symptomatic expression yet are sufficiently similar to make clinical differentiation difficult. At present, non-surgical treatment is indicated unless there is absolute evidence of gross intestinal perforation. Under these conditions, the treatment of shock, sedation, chemotherapy, and the parenteric maintenance of fluid balance and nutritional requirements generally yield the best results.

The treatment of shock has undergone marked advance. The Navy uses the regulation packet of plasma which consists of a sealed container of 250 cc. of original plasma and a container of sterile distilled water. The use of the new concentrated plasma or rather serum albumin has also been inaugurated. This has many advantages over the regulation packet. The concentrated serum albumin unit consists of 25 gms. of powdered human albumin dissolved in 100 cc. of saline. It is equivalent in oncotic pressure strength to 500 cc. of normal human plasma. In cases of severe shock due to burns or trauma, the advantages of rapid injection of small quantities of concentrated plasma are obvious. Our understanding of dosage of plasma has also undergone considerable change. A routine dosage of 500 cc. has been shown to be as ineffective as it is illogical. The extent of injuries varies, and similarly, the degree of shock in different individuals varies. Dosages of 1500 and 2000 cc. are quite common. Even amounts as great as 12 liters of normal human plasma have been required and given in a short period in cases of severe burns or trauma. Often it is important to give such plasma rapidly, at the rate of 500 cc. in 15 minutes, and Navy Medical Journals even suggest the use of a syringe when necessary. A special type of syringe which can be reloaded without removing the needle from the vein has been devised. Naturally the decreased volume allows for a quadrupled rapidity of infusion. This has often been of life saving significance.

Other approaches to the problem of shock are also being investigated. Shock is characterized by the diminution of the venous pressure causing cardiac embarrassment. Therefore, an attempt has been made to increase the pressure of blood returning to the heart by using Coramine to heighten muscle tonus

(Courtesy Chicago Sun)

First U. S. Navy wounded at Pearl Harbor arriving in San Francisco awaiting transfer to Naval base hospitals

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ALUMNI NEWS

1915

We had the pleasure of hearing from Dr. C. J. Munch of Culbertson, Montana, who writes, "I like your publication, particularly your Alumni column."

1916

Dr. Albert Martin of U. S. Veterans' Facility, Livermore, California, writes that he has been serving as Tuberculosis Specialist in Veterans' Administration Service since 1920. Dr. Martin extends his best wishes for the continued success of the QUARTERLY.

Dr. Ira M. Mason is engaged in general practice.

1917

We extend our sincere congratulations to Dr. W. A. Heap who is being inducted into the International College of Surgeons as a Fellow on June 14.

1926

Lieut. H. Edmond Quinn recently got his Wings, and is now serving with the Second Air Force.

Dr. Frank Sadowski is on the Associate Staff of St. Mary of Nazareth Hospital and is also a member of the American Medical Association. Dr. Sadowski writes, "I read the QUARTERLY from cover to cover. It is good, instructive reading."

1932

Dr. William K. Herman is engaged in general practice.

Captain Kenneth L. Fisk informs us that he recently returned from the "medical West Point" at Carlisle Barracks, Penna. His present post is with the 154th Medical Detachment, 31st Division, Camp Shelby, Miss.

1933

Lieut. Frank F. Gross, M.C., having graduated from Carlisle Barracks, is now Flight Examiner at the Army Base at Ephata, Washington.

1934

Dr. Andrew Krojec is practicing in West Salem, Ill.

1935

Dr. V. M. Timm of Metropolis, Ill. writes, "A good paper. Keep up the work."

1937

Lieut. Meyer Mandel, our first alumnus to be commissioned, recently completed his training at Flight Surgeon's School, and has been sent "Somewhere in South America."

Lt. Samuel C. Noto writes us that he is stationed at the Station Hospital, A.A.F., Buckley Field, Colo.

1938

Lieut. George E. Fisher is now serving with the Army at the 84th Armored Medical Bn., 14th Armored Division, A. P. O. No. 446, Camp Chaffee, Ark.

Capt. Anthony L. Grizzaffi, former assistant in the Gynecology Clinic, informs us that he received his captaincy May 11, 1943, and is at present battalion surgeon for the 1st Battalion, Medical Detachment 337th Infantry, A. P. O. 95, U. S. Army, Fort Sam Houston, Texas.

1939

Lieut. Louis Berlin informs us that he is taking special courses at the School of Military Neuropsychiatry, at Lawson General Hospital, Atlanta, Georgia.

1940

Lieut. and Mrs. Edward Hirsch proudly announce the birth of their son, Michael Stephen, on April 13, 1943.

We see from the return address on the envelope that Captain Frederick Spector has recently been promoted to captaincy. He is stationed with the 31st Medical Regiment, A.P.O. 545, Los Angeles, Calif.

Captain A. E. Comarr writes us that he is now Battalion Surgeon of the Maintenance Battalion of his outfit. He is stationed with the Maintenance Battalion, A.P.O. 253, I.G.M.R., Indiantown, Penna.

1941

Lt. and Mrs. J. M. Staron announced the birth of their daughter, Susan Jane, on May 14, 1943. Heartiest congratulations!

1942

Dr. Gerard Sciaraffa and Rose Marie Koc, formerly a member of the Secretarial Staff at the Chicago Medical School, were married on February 14, 1943.

Dr. Leon M. Rothman has announced his engagement to Miss Sylvia Kassin of New York.

DEATHS

Dr. Albert E. Doe died on February 13, 1943, of post-operative pneumonia. Dr. Doe graduated from the Chicago Medical School in 1921, and was a physician for the Chicago Rapid Transit Company and the North Shore Lines, with his private office at 5958 W. North Ave.

Dr. Lowell N. Clyne was killed in a plane crash on May 9, 1942. Dr. Clyne received his degree of Doctor of Medicine, July 1, 1939.

The desire to take medicine is perhaps the greatest feature which distinguishes man from animals.—Sir William Osler.

FACULTY MEN IN SERVICE

Dr. Charles A. Fleischner, Instructor in Clinical Gynecology, has just received his commission as Lieutenant Commander in the U. S. N. R. He left for active duty at the Marine Base Hospital in San Diego, California, on May 17, 1943.

Lt. Commander M. A. Jacobson, Assistant Professor of Public Health and Preventive Medicine, is now stationed at the U. S. Naval Hospital, Farragut, Idaho, where he is Director of Laboratories.

Dr. Andrew P. Barnai, Associate in Clinical Psychiatry, received his commission in the Medical Corps of the U. S. Army. He reported for duty May 17, 1943.

Major Jack D. Kirshbaum, Assistant Professor of Pathology, is at the Station Hospital, Shenango Personnel Replacement Depot, Transfer, Pennsylvania. He had previously been stationed at Fort George G. Meade, Maryland.

Lt. M. L. Gordon writes us that after six weeks of maneuvers in the desert in California under Gen. Patton, he has been engaged in maneuvers for the past two months in Louisiana. He hopes soon to be able to return to his regular post with the 64th Med. Regt., Camp Bowie, Texas.

Dr. William F. Bartelt informs us that he has been called to the colors with the rank of major. Major Bartelt is an old alumnus, having graduated from Jenner Medical College in 1915. Since 1932 he has served on the faculty of The Chicago Medical School, and for the past few years he gave a course in Military Medicine to the Seniors.

* * * *

"MAKING THE BEST OF THINGS"

A curious epitaph is to be seen at Conway, Carnaworshire.

"Here lieth the body of Nicholas Hookes, of Conway, gentleman, who was one-and-fortieth child of his father, William Hookes, Esq., by Alice, his wife, and the father of his 27 children."

* * * *

At Litchfield, Connecticut, there is said to be the following inscription:

"Here lies the body of Mrs. Mary, wife of Dr. John Bull, Esq. She died November 4, 1788, at ninety; having had 13 children, 101 grandchildren, 274 great grandchildren, and 22 great-great grandchildren, a total of 410; surviving 336."

SOCIAL NOTES

Mr. and Mrs. Richard Adamski (he's in the Junior class) announce the birth of their second child, Richard Adamski, Jr., on April 30, 1943.

Herbert Smulson of the Junior class was married to the former Miss Fay Adelman of Cleveland, April 4, 1943.

Roy A. Hecht, of the present senior class, was accorded the honor of being elected to full membership in the Sigma Xi Society, University of Illinois College of Medicine chapter, April 23, 1943. He was elected to the society as an associate member on March 19, 1943, and his election to full membership is a great honor to himself and to his school. He has written several articles pertaining to his research on curare, and it is on the basis of this work that he has been elected to Sigma Xi Society.

Joe Brown, of the Junior class, married the former Miss Carolyn Monroe at Falmouth, Ky., on April 17, 1943.

Mr. and Mrs. Max Dee Shapiro celebrate their fourth wedding anniversary on June 18. He is a member of the Senior class.

Mr. and Mrs. Bart D. Iaia (he's a Senior) celebrate their first wedding anniversary on June 24.

Mr. and Mrs. Pasquale DeMarco celebrate their first wedding anniversary on June 24.

JUNIOR PROM

The Junior Class, in accordance with the traditions of The Chicago Medical School, is holding its annual Junior Prom on August 7, 1943. The affair will be held at the Medinah Club, Michigan Boulevard, and it will be a buffet dance with an interlude of entertainment by professional performers. Eddie Fens and his orchestra will provide the music for dancing.

The Junior Prom each year has been a great success, and we are all looking forward to having a swell time at this Prom. Let's all support the dance and go!

* * * *

As a lithotomist, Thomas Bond is well remembered. Though a Doctor Jones of New York has been credited with the first lithotomy in America, there are those who believe that honors should really go to Bond. He is known to have performed this operation as early as 1756 in the Pennsylvania Hospital. Of the surgical appliances he devised, the one most readily recalled is the so-called Bond's splint.

FACULTY NOTES

On April 23, 1943 The American Association of Anatomists held a local meeting at the University of Illinois, College of Medicine.

Among the speakers from the many local schools were two members of our faculty, both introduced by Dean John J. Sheinin of our school.

Dr. Elmer D. Bueker's talk was entitled "Intra-central and peripheral factors in the differentiation of motor neurons in transplanted lumbo-sacral spinal cords of chick embryos." Though still in the experimental stage the conclusions drawn by Dr. Bueker have opened many new fields for research.

Dr. William E. MacFarland's lecture was a follow-up on his many experiments on adrenal innervation. His topic was "Transplantation as a method in determining the distribution of nerves to the adrenal gland." Dr. MacFarland demonstrated his lecture with many interesting slides. Both talks were well received.

Dr. Oscar Felsenfeld

Dr. Oscar Felsenfeld has recently been appointed to the faculty of The Chicago Medical School as instructor in Clinical Pathology. Dr. Felsenfeld also holds the position of Chief Bacteriologist of the Illinois State Department of Public Welfare.

Dr. Felsenfeld has a distinguished and enviable background. He received his M.D. degree from the University of Charles in Prague in 1930. In 1933 he received the degree of Master of Science from the same university. Later, in 1935, the University of Marseilles in France bestowed upon him the Certificate of Tropical Medicine. Dr. Felsenfeld served as a medical officer in the Czechoslovakian army and was also health officer in the Czechoslovakian Public Health Service. He taught at the University of Charles and later went to Africa and Asia to do research work on cholera and the rickettsial diseases.

In 1940, Dr. Felsenfeld came to the United States. He taught for some time at Meharry College, Tennessee, after which he came to Illinois. Upon his arrival in this state he became associated with the Illinois State Department of Public Welfare, which he now serves as Chief Bacteriologist.

The faculty, the student body, and the staff of The Quarterly join in extending to Dr. Felsenfeld a hearty welcome and best wishes for success in his work.

Dr. Samuel J. Bolonik

Dr. Samuel J. Bolonik, newly appointed Instructor in Pediatrics, came to the Chicago Medical School Staff at the beginning of the current year. Dr. Bolonik, a native Chicagoan, received his M.D. degree at the Rush Medical College in 1935, following his attaining the B.S. degree at the University of Chicago in 1931. He interned at Mt. Sinai Hospital for two years.

In addition to Dr. Bolonik's present teaching, his

other academic associations include Associate at the Cook County Hospital and Adjunct at the Mt. Sinai Hospital.

In his spare time, Dr. Bolonik is quite a sports enthusiast, playing handball and tennis. Dr. Bolonik is happily married and the proud father of a 20-month-old offspring. We should like to extend our heartiest welcome to Dr. Bolonik.

* * * *

Dr. William S. Hoffman, Professor of Physiological Chemistry and Associate Professor of Medicine, gave an interesting discourse on "Sulfa Drugs and their Use." It was delivered on April 27th, 1943 to the Science Club of State Normal University, Normal, Illinois.

BASKETBALL TEAM

In baseball, it is the St. Louis Cardinals. In football, it is the Chicago Bears. But in basketball around the Medical Center, it is the Blue and Buff of The Chicago Medical School. In two years of competition the records show 18 wins and only one loss, an enviable record, indeed. This is to be culminated soon by the presentation of gold basketball trophies to the members of the team by the Professional Schools Y. M. C. A. as winners of the Professional Schools Basketball Tournament of 1942-43.

The members of the team are: top row, from left to right, S. Friedman, D. Belden, I. Agrin, H. Permesly, J. Ehle; bottom row, A. Light, J. Clare, B. Goldstein, W. Starr, and I. Bernstein. Conspicuous by his absence is our 6′ 5″ tower of reserve from the Peach State, our lately married Joe Brown. S'matter, Joe, bashful?

Dr. Henry A. Smith

Dr. Henry A. Smith, of the Department of Dermatology, has achieved a record of distinguished service to our school.

A native of South Dakota, he received his pre-medical training at Freeman Jr. College, South Dakota, Joliet Jr. College, Lewis Institute and the University of Chicago and his medical training at The Chicago Medical School, which conferred the degree of M.D. upon him in 1931.

After serving an interneship in the South Shore Hospital, he received the appointment of Clinical Assistant in Dermatology at C. M. S. under Dr. C. D. Collins. For the past four years he has been the Associate in Clinical Dermatology under Doctor Oppenheim at our school.

Dr. Smith's extra-pedagogical activities reflect deep interest in the growth of our school. He has served as President of the Alumni Association for the last three years and has recently been honored with election to the Board of Directors. Dr. Smith's practice is limited to Internal Medicine and Dermatology.

* * * *

RATIONING (?)

"In 1774—the belly of a ravenous galley-slave was opened, and in the stomach were found 52 foreign bodies—including a barrel hoop 19 inches long, nails, pieces of pipe, spoons, buckles, seeds, glass and a knife."

ELEMENTARY ANESTHESIA

A second educational movie in full color has recently been completed by a group of students with the cooperation of the Department of Physiology. Entitled, "Elementary Anesthesia," it portrays the characteristics of the important stages of anesthesia, with the indispensable laboratory animal, the dog, as subject.

In this feature, anesthesia is divided into the customary four stages: I, or stage of analgesia, II, or stage of excitement, III, or stage of surgery, and IV, or stage of respiratory paralysis. For brevity and simplicity Stage III is divided into only two, instead of the usual four planes, Plane 1-2-3 and Plane 4, based on the fact that respiration is similar in the first three planes but shallower in the fourth. The signs of anesthesia that are followed in addition to respiration are the eyelid reflex and pupil size.

The movie opens with a concise statement of the

STAGE	RESPIRATION	EYELID REFLEX	PUPIL SIZE	CONDITION OF PATIENT	SURGERY
I	REGULAR	PRESENT	NORMAL	SAFE	DO NOT BEGIN SURGERY
II	IRREGULAR	PRESENT	NORMAL	SAFE	DO NOT BEGIN SURGERY
III PLANE 1-2-3	REGULAR	ABSENT	NORMAL OR DILATED	SAFE	BEGIN SURGERY
III PLANE 4	SHALLOW OR ABSENT	ABSENT	MARKEDLY DILATED	PERILOUS	STOP SURGERY
IV	ABSENT	ABSENT	FIXED AND DILATED	EXTREMELY PERILOUS	STOP SURGERY

aims of anesthesia and points out the signs by which the various stages may be identified. Then each sign for each stage is introduced and demonstrated on the dog. The movie closes with a reiteration of what has been demonstrated.

Each sign for each stage is introduced, each in its order from Stage I to Stage IV, by means of a huge animated chart shown in Fig. 1; then the sign under consideration is demonstrated on the dog. The letters of the chart are colored white, green, yellow or red and are so reproduced by the full-color film.

The quality of respiration is shown by a flag attached to the dog's side which waves vigorously, regularly, or languidly, depending on the type of respiration.

The movie was photographed on Kodachrome, and the titles were photographed on amber film.

Kenneth Calhoun operated the camera with his usual skill; Robert Bodwin served as General Manager, overseeing the finances, details of equipment and photography. H. Lesser, S. Kowalski, and E. Bankowski were Technical Assistants, aiding wherever and whenever needed. The film was made under the direction of Dr. Jay A. Smith.

This motion picture fills a need by the freshmen students for an organized demonstration of what they should see during the progress of anesthesia. It also pictures the danger signs and demonstrates what to do when the anesthesia becomes too shallow and especially when it becomes too deep. It is hoped that these students, by seeing such a demonstration of anesthesia, will appreciate the signs and stages of anesthesia while working with the dog, and may, as a result, have better technic when they administer anesthesia to their future human patients.

* * * *

"Nails sometimes grow several inches after death, and there is on record the account of an idiot who had an idiosyncrasy for long nails, and after death the nails were found to have grown to such an extent that they curled up under the palms and soles."

* * * *

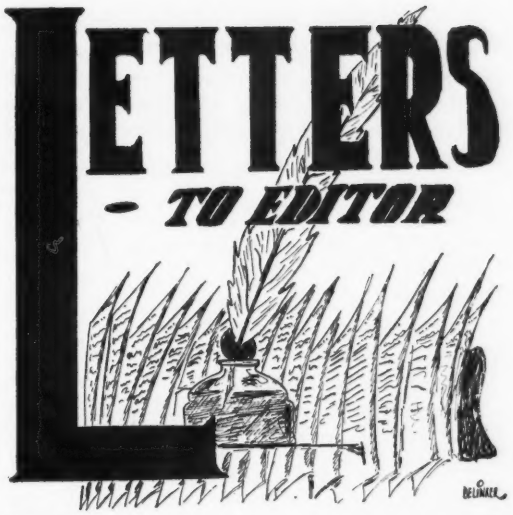
The story of a "patient . . . who was set upon by a band of thugs in India, who pursuant to their usual custom, strangled him and his fellow traveler. Not being satisfied that he was quite dead, one of the band returned and made several gashes across his throat. This latter action effectually relieved the congestion caused by strangulation and undoubtedly saved his life, while his unmutilated companion was found dead." Motto: Never kill a guy after he is dead or he may live to tell the story.

* * * *

There is no more miserable human being than one in whom nothing is habitual but indecision.—William James.

* * * *

George Huntington's classical description of the chorea associated with his name was the only scientific study he ever made. He was a medical practitioner, and he modestly gave credit for this work to his father and grandfather who, he claimed, had familiarized him with the disease.



Dear Editor:

Carry on the good work!

I have been in the armed forces for the past eight months, during which time I have contacted our many alumni. They are carrying out the high ideals of the Chicago Medical School and also carrying their heads high. We are proud to serve our country.

I am the second ranking officer in my company, and expect a captaincy in the near future. At present I am Battalion Surgeon of my outfit.

Previous to my entrance in the army I completed four years of hospital work, three years of which was a rotating residency.

Through your magazine, I would like to send my sincerest regards to all my classmates, and would like to hear from them. Sincerely,

Lieut. George E. Fisher, B.C.
84th Armd. Medical Bn.
14th Armd. Division
A. P. O. No. 446
Camp Chaffee, Ark.

Dear Editor:

Many of us belong to the different organizations in the school, the AIMS, the Nu Sigma Chi fraternity, the Phi Lambda Kappa fraternity, and each of us who does belong to one or more of the above groups is loyal to that organization, and rightly so. Yet none of us can deny that we have a common bond, greater than any one or several organizations combined, and that strong tie is the interest and welfare of The Chicago Medical School. Still, it is common knowledge that the student body could never act as a unit, even in matters of common interest, because no student organization exists today to unite the several organizations in a common cause. Petty factionalism, individual interests must give way to unity! For unity is the only path for "the most good for the most people."

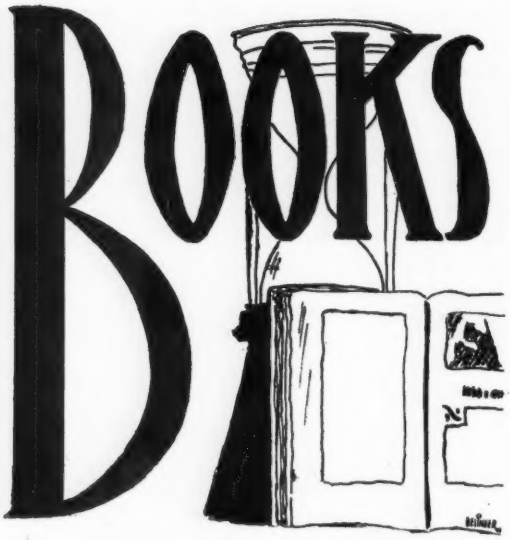
The solution to the problem is in the formation of a Student Council which would serve to unify the whole student body, and thereby promote universal good fellowship and the general welfare of the students individually and the student body as a whole. Such a step would, however, be useless unless there is wholehearted support from the entire student body. The need for such a Student Council is obvious. Let's do something about it.

A Student

Dear Sir:

I thought the readers of THE QUARTERLY might be interested in this picture of our medical detachment mascot, "Bandaid." Part chow and part shepherd, she was six weeks old at the time the picture was taken, and was a devoted and playful pet. Unfortunately, she went AWOL several weeks ago, and has not been heard from since. We thought she might be headed up toward Des Moines to join the WAACS. If you see a small, light tan, chow-shepherd female puppy wandering about the Cook County Hospital don't fail to let us know. Sincerely,

Lawrence Kalom, 1st Lieut. M. C.



BALLENGER, H. C. A MANUAL OF OTOLOGY RHINOLOGY, AND LARYNGOLOGY. A manual of Otology, Rhinology, and Laryngology: Howard C. Ballenger, M.D., F.A.C. Lea & Febiger, 1940, 295 pp.

This new and interesting volume exhibits a number of the pitfalls which are commonly found in popular condensations. In an effort to cover the wide scope of ear, nose, and throat disease in a fewer number of pages, the author loses sight of his main object, namely that of teaching the uninitiated.

The condensed discussions of anatomy, pathology, and symptomatology do not differ materially from those found in similar volumes. Treatment, where it is given, is usually well founded but rarely garnished with sufficient detail to make it of practical value. Deficiencies in this respect may lead to basic misconceptions on the part of the reader, who, thereby directing or instituting therapy, may cause harm to his patient.

One must, however, commend an honest effort to describe many of the more recent therapeutic procedures heretofore in use by the specialist, but not previously presented to the general practitioner. The author's generous recognition of physical therapy is a step forward in otolaryngology.

The criteria for management of acute inflammatory diseases of the middle ear and mastoid are clearly stated and with good foundation. There is an interesting discussion of irrigation of the draining ear with aqueous media, which, although certainly not the last word on the subject, is well worth reading.

One may commend the inclusion of the single color chart depicting diseases of the tympanic membrane, but the representation of other conditions graphically might well be attempted, as well as some improvement in the discussion of methods of examination in the more frequent conditions.

R. M. Loring, M.D.

THE MARCH OF MEDICINE: The New York Academy of Medicine Lectures to the Laity, 1942. Columbia University Press, 1943, 217 pp., $2.50.

The New York Academy of Medicine must, indeed, have a high opinion of the comprehensive powers of the laity as a whole, if the lectures contained in this book were intended for their ears alone. As acknowledged in the introduction, however, the medical profession also seems to have been considered in the choice of expression and subject matter. The result is a series of six lectures which contains little of the over-simplified, distorted, and narrow discussion usually found in writings that attempt to explain highly technical, and often controversial, developments to the uninitiated. This may have defeated the basic purpose of the volume—the education of the layman in the whys and wherefores of medicine so as to secure his understanding cooperation—but it certainly adds to the mental stimulation and pleasure that can be derived by those of the profession who appreciate philosophy and history with their medicine, and those of the laity who understand a minimum of biological facts and terminology.

The first lecture, by Dr. James A. Miller, is titled "Tuberculosis: the Known and the Unknown," and covers the past history and present knowledge of the disease. The progress in prevention and treatment is discussed, and the important points of controversy about immunity and the tuberculin reaction are nicely presented. "The Brain and the Mind," and the ideas men have had about them in the past are covered by Dr. Tracy J. Putnam of Columbia University. He devotes a large part of his discussion to the controversy between the "conscious automaton" theorists and the psychologists, not without bias (accentuated, perhaps, by my own) but, at least, with a fair presentation of facts supporting both concepts. Dr. A. A. Brill, a well-known disciple of Freud, and a competent translator of his works, evaluates "The Freudian Epoch" with the enthusiasm we could expect. Dr. Brill stresses the importance of Freud's contributions to psychiatry, an importance that should not be denied, even by those who most strongly disagree with his doctrines.

The highlight of the book, in my opinion, is the

paper by Dr. Arnold Gesell, of Yale's School of Medicine, on "Genius, Giftedness and Growth." His whole approach to this topic may annoy those few who have neither the imaginative ability to extend their comprehension of simple, demonstrable processes to a conception of infinitely complex ones, nor the lack of ingrained prejudices necessary to appreciate his clever, erudite analysis of creative behavior. He, at once, sweeps away the mystical or, at least, non-physical theories of mental function, which Dr. Putnam (The Brain and the Mind) seems to favor, by saying, "But this romantic concept is too dualistic, too animistic for our purposes. It is too supernatural. Our task is to make the operations of creative behavior, including genius, more understandable, by interpreting them in the light of universal natural processes." That Dr. Gesell is able to do just that in such beautiful style and with such liberal use of examples and analogy is remarkable.

"The History of the B-vitamins," by Dr. Norman Jolliffe, is just that. The author gives an easily read account and summary of the work done in this field. The last lecture, titled "The Newer Knowledge of Nutrition," is by Dr. A. J. Carlson, and is rather disappointing. The newer knowledge that Dr. Carlson gives us is very little, and seems to consist mainly of his own prejudices. He picks bones with various people, but they are such very small bones that one wishes that he had concerned himself more with physiology, in which field he has gained considerable recognition.

On the whole, this is a stimulating and enlightening book, and is recommended for those physicians, students, and laymen who might enjoy their medical literature seasoned with a bit of history and romance.

B. W. R.

ABSTRACTS

HYPERTHYROIDISM TREATED BY ESTROGENS, W. E. Shute and E. V. Shute, *Canadian M.A. Journal,* 46:pp. 441-444, May, 1942.

This article is devoted to the citation of four cases of hyperthyroidism in which the preoperative treatment consisted of medication with estrogenic substances. The theory is that estrogenic substances depress the anterior pituitary and its consequent production of thyrotropic hormone.

Use of estrogens is said to be responsible for some decrease in pulse rate, but no change in basal metabolic rate, exophthalmos, size of thyroid, tremor, or skin moisture. Of the four cases cited, three show very marked improvement. A list of ten references is appended to the article.

SO-CALLED "IODINE RESISTANT" HYPERTHROIDISM; J. E. Kearns and P. Starr, S.G. and O., 74:, Feb. 1942.

This article indicates that in handling patients with hyperthyroidism who do not have iodine remissions, iodine must be withheld gradually. This process may take weeks. Bed rest, sedation, and X-ray are ample measures to control symptoms. The patient must be kept on a diet which is iodine-free, rich in proteins, vitamins, and carbohydrates. After two to four months, the patient is prepared for operation, using iodine.

Three cases are cited. In two, with no history of previous iodine medication, patients were apparently iodine resistant. They were weaned from iodine, and three months later, they responded to iodine and were operated. In the third case, intercurrent infection interrupted the pre-operative preparation. Iodine was gradually stopped. Three months later, the patient was successfully prepared and operated.

Six references are cited.

PRIMARY HYPOCHROMIC ANEMIA TERMINATING IN PERNICIOUS ANEMIA, E. B. Miller and W. Dameshek; *Arch. Int. Med.* 68: pp. 375-394, Sept., 1941.

Two cases are presented. The first is interesting as an idiopathic hypochromic anemia associated with a Plummer-Vinson syndrome, a marked aversion for meat, and gradual transition to a typical pernicious anemia, which responded to liver. The second case presents a combined iron and liver deficiency anemia, in which the feeding of iron unmasked the pernicious anemia.

Possible mechanisms of these transitions are discussed but shed little light. Apparently these cases start a simple achlorhydrias and a deficiency in the intrinsic factor develops.

A. H. B.

* * * *

Historical verification that Caesar was an epileptic seems to rest upon the authority of Plutarch and Suetonius. Both speak of repeated attacks, one having occurred just before the battle of Thapsus. Whenever he felt an epileptic seizure coming on, Caesar would try to cover his face. In the opinion of one writer the contemporary bust of Caesar quite plainly indicates the Facies Epilepticus, while another says that the iconography of Caesar proves the absence of facial anomalies.

ORGANIZATIONS

PHI LAMBDA KAPPA

On May 27th at a Dinner meeting held at the University of Illinois Student Union Dr. H. Cooper was initiated to the position of Honorary Faculty member of Alpha Rho Chapter of Phi Lambda Kappa Fraternity. Our newly appointed Honorary Worthy Superior, Dr. J. Brodsky spoke in behalf of the National Organization and welcomed the new Faculty member to our group. Guests of the evening were Dr. Samuel Schwied, Dr. David Wishney, and, of course, Dr. Cooper.

Dr. Borovsky was the Guest Speaker for our chapter at the joint dinner meeting we held with Alpha Alpha, the University of Illinois chapter of Phi Lambda Kappa, on Friday evening, April 30th.

* * * *

Rh FACTOR

(Continued from page 11)

and the mixture is incubated for one hour in a water bath at 37° C. The mixture is then centrifuged at 500 R.P.M. for 1 minute. Then, by gentle agitation, the cell button formed on the bottom of the tube is distintegrated and the suspension is examined for agglutination of the cells. Rh positive cells are agglutinated at the end of 15 minutes.

CONCLUSIONS

1. In transfusion of Rh negative recipients Rh negative blood should be used to prevent the formation of anti-Rh agglutinins in the blood of the recipients.

2. The Rh factor is evidently the etiologic factor in erythroblastosis fetalis.

BIBLIOGRAPHY

1. Wiener, A. S., Am. J. Clin. Path.: 11:102-121: 1941.
2. Mayer and Vogel, J. Mt. Sinai Hosp.: 8:300-304: 1941.
3. Diamond, L. T., New Eng. J. of Med. 23:227-857: 1942.

* * * *

Unlike such eponyms as the Argyll-Robertson pupil, which are universally recognized and constantly applied in medical diagnosis, there is another type of eponym to which reference is made but rarely. Possibly, in these instances, as in the case of Baker's cyst, it is the misquoting or loss of the original papers that account for the unfamiliarity of many physicians with the eponym. As for Baker, his name should be reserved for synovial cysts of the leg since his was the original presentation on this condition.

SMALLER THINGS

(Continued from page 10)

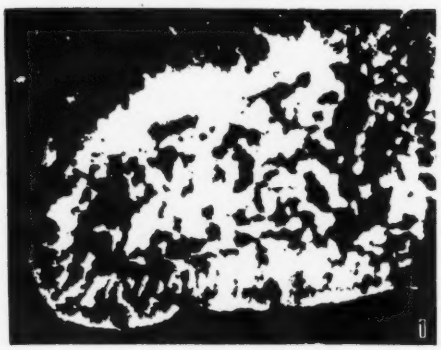


Fig. 1 Villus of cat duodenum with large amount of calcium in nuclei of epithelium.
Fig. 2 After perfusion with sodium citrate.

posed between the cathode and plate elements in the tube. This high potential pulls electrons off the cathode through the object being examined and, after being focused by the lens system, the electrons impinge on the fluorescent screen and produce the image.

As the electron microscope is today, its uses in the biological sciences is definitely limited by the special techniques which have to be employed. Perhaps, sometime in the not too distant future, by more carefully controlled voltages and more accurately made lenses, the instrument will have the efficiency and accuracy required to elevate it from the pioneering stage.

LITERATURE

Borris, B. V., E. Ruska, and H. Ruska. 1938. Ubermikroskopische Bacterien-aufrahmen. Wissen. Veroff. Siemens-Werken Bd 17 S.107.
Krause, F. 1937. Das magnefische Elektronmikroskop und seine Anwendung in den Biologie. Naturwissenschaften, vol. 25, p. 817.
Scott, Gordon H. and Packer, D.M. 1939. Anat. Rec. vol. 74, p. 17.
Lansing, Albert I. and Scott, Gordon H. 1942. Anat. Rec. vol. 84. p. 91.

(Continued from page 21)

and thereby to increase the pumping action of the skeletal muscles.

In the treatment of burns, the rational use of plasma to combat shock has been aided by the development of methods for estimating the volume needed for replacement. The most convenient method suggested is that of giving 50 cc. of plasma for each per cent of body surface involved, estimating surface areas according to the following table: head 6%, both upper extremities 13.5%, both hands 4.5%, anterior surface of body 20%, posterior surface 18%, thighs 19%, legs 13%, feet 6%. Another method is to give 100 cc. for each point on the hematocrit reading over 45.

Even more changes have occurred in the local treatment of burns. At Pearl Harbor, the burns were almost all treated by some form of escharotic. Tannic acid and silver nitrates were sprayed over the burn areas to produce an eschar. Aniline dyes, like gentian violet, acriviolet, triethanolamine, and the triple dyes have all been used. The disadvantages are serious. They require frequent applications for several hours, rendering this method less practical for military purposes. There is always danger of infection under the eschar, and loss of plasma through the damaged capillary walls is not prevented effectively. What plasma does collect is allowed to form pockets under the eschar leading to localized pressure necrosis and providing a good bacterial culture medium.

The recognition of a burn as a surgical wound has radically changed the local management of burns. The basic principles are: 1. Rendering the burn wound aseptic by the use of sterile soap and water. 2. Adequate debridement. 3. Application of smooth even layers of fine mesh gauze bandage impregnated with vaseline or boric acid ointment. 4. Application of a compression bandage consisting of thick layers of mechanics waste or cellulose bound by elastic bandage or even plaster casts. 5. Immobilization with splints or plaster casts for 10 days. The compression diminishes the amount of plasma oozing from the surface and into the tissues, while the vaseline gauze assists drainage. Furthermore, those islands of germinating epithelium which have been spared by the burn are not destroyed by the escharotic. Healing is thus quicker and the incidence of infection and excessive scar formation is diminished. After 10 days, the granulating area is ready to receive a graft.

The naval flight officer has to have a detailed knowledge of the effects of pressure changes on the ear, nose, and throat. These factors are especially important in the presence of upper respiratory infections; special problems in this field include sinus vacuum headache, conjunctivitis glare, vitamin deficiency (especially vitamin A), cumulative fatigue, ocular asthenias, spastic muscular pains, visceral pains, psychomotor and gastrointestinal disturbances which all form part of the complex picture. The naval flight officer must care for the morale of the men by arranging for their exercise, recreation, and diet.

In the treatment of fractures, the new metal Stader splint is being introduced. This apparatus maintains fixation and reduction while permitting the use of the extremity. Originally designed for veterinary practise, this splint is achieving new recognition in the treatment of human fracture cases.

In the field of infectious disease, the Navy Medical Department has established a project whose function it is to investigate and identify the strains of the epidemic influenza virus, to determine their frequency in the Navy, and to test the available means of vaccination against them. New tests for agglutination have been developed. One of these is based on a delicate flocculation reaction in which specific influenza viruses agglutinate a stable suspension of collodion particles coated with influenza antibodies. On the basis of this and other tests, it has been found that the incidence of immunity for influenza has been raised by vaccination from 31% to 79% for Type A influenza virus and from 20% to 58% for type B influenza virus.

Advances are being made in the development of an anti-typhus fever vaccine in which water is used instead of human serum. It is expected that the incidence of post-vaccinial jaundice will be diminished.

An intensive program to control venereal disease has been carried out in the past few years. This has included educational lectures, prophylactic supply, prophylactic treatment on exposure, and compulsory treatment in the event of infection. The details of the program and its results are deserving of a separate report and, therefore, will not be recounted here. It suffices to say that the incidence of gonorrhea in the Navy has been decreased.

The responsibility of the Navy Medical Department is therefore not merely the repair of injuries, but also the active improvement of the mental and physical health and, thereby, the efficiency and morale of the men in the Navy. The Navy Medical Department thus plays a vital role in our common effort to hasten the day of victory over fascism.

(Continued from page 17)

tion of sera for prophylactic or therapeutic purposes should be investigated.

Family History. Investigation should be made about the presence of any allergic diseases in the antecedents of the patients. One should ascertain whether the patient's children have allergic diseases.

Physical Examination. Every allergic patient should receive a careful and thorough physical examination. This is particularly so in patients with bronchial asthma, where one must consider the possibility of pulmonary tuberculosis, cardiac asthma, mediastinal gland enlargment, or renal disease. Frequently, pathology elsewhere in the body may shed light on the allergic condition.

Diagnostic or Sensitization Tests. These tests are performed for the purpose of determining the presence of sensitivity. The procedure includes more than what is popularly referred to as skin tests, which constitute only part of an allergic survey. The indiscriminate routine performance of a series of tests means little or nothing. On the other hand, if these tests are properly performed with fresh, potent, and biologically tested extracts, and if the tests are correctly interpreted, they constitute an important link in the chain of evidence which may unearth the cause of the patient's allergy. Such testing may be done in several ways, and each method has its own advantages and indications:

1. *Scratch test.* The skin of the forearm or back is cleansed with 70% alcohol. With a blunt knife or needle a series of scratches is made, each one eighth of an inch long, through the outer epidermis without producing bleeding. The extract especially prepared for the scratch test is added to each individual scratch, and the results are read in 10-15 minutes. A hive-like erythematous reaction indicates a positive result. This method of testing has the advantage of giving rise to a minimum of constitutional reactions, and is, therefore, safer in the hands of the general practitioner. It has the disadvantage of being a poorly sensitive test, especially when foods are suspected.

2. *Intradermal test.* This consists of the injection of a small amount, usually 0.01 cc. of a specially prepared liquid extract, of the suspected substance between the layers of the skin. A tuberculin syringe and a 27 gauge $\frac{3}{8}$" rustless needle are used for this purpose, being sterilized by boiling. The outer arms are the best sites for the tests, the skin is cleansed with 70% alcohol, and the injections are given, usually ten in each arm, about one inch apart. This method is cleaner, less painful, and more rapid than the scratch test, but it yields a greater percentage of false positive reactions, and occasionally it may give rise to a serious constitutional reaction. It is of the greatest value in testing hay fever, asthma, and allergic dermatitis. It is of no value in contact dermatitis and drug allergy. The appearance of a wheal, especially with pseudopods and a surrounding area of erythema, indicates a positive reaction. This reaction is read as slight, moderate, or marked, depending upon the size of the wheal and the number of pseudopods. Occasionally, the reaction may be doubtful or slight, but if one waits 24 hours, a definite positive reaction may occur. This is known as a delayed reaction. False positive reactions occur not infrequently in a highly sensitive skin while refractory skin will fail to give a positive reaction even when clinical sensitivity exists. Furthermore, the reaction depends also upon the nature, the amount, and the concentration of the extract employed in testing.

3. *Patch test.* The skin of the arm or forearm is washed. The suspected material is placed on the skin and is covered with a small square of cellophane which is held down with a strip of adhesive tape. The reaction is read in from one to four days. The patch test is of value in such conditions as poison ivy and the various forms of contact dermatitis.

4. *Indirect test (Prausnitz-Küstner phenomenon).* The skin of a normal person is sensitized by the injection of 0.1 cc. of the serum of the patient. 24 hours later an extract of the suspected protein is injected into the site of the first injection. The appearance of a wheal is indicative of a sensitivity of the patient to that protein. The control should be negative. This test is very useful in cases in which it is not possible to test the patient directly, as, for example, in infants, or if the skin of the patient is extensively involved in a severe dermatitis or dermographia.

5. *Ophthalmic test.* This test is performed by placing in the conjunctival sac a drop of the extract, or a few grains of the dry, raw material which is suspected of being the offending agent. Within a few minutes the test is read, and if the conjunctival vessels are markedly congested, and if the eye is red, with lacrimation and itching, the test is positive. This is a good corroborative test.

6. *Nasal test.* This test is performed in the same manner as the ophthalmic test, except that the suspected substance is introduced into the nose. This test is sometimes referred to as the "sniff" test.

7. *Elimination test.* Other clinical tests which can be

carried out are the elimination diets, many of which can be found in the literature. These consist of observing the effects of dietary restrictions on the patient's condition. The patient may also be exposed intentionally to the substances which are suspected of producing the symptoms in order to observe the effect of such contact.

Laboratory and Special Examinations

1. Blood count to determine the presence of anemia and eosinophilia.
2. Blood calcium. A series of cases studied by the author several years ago failed to show hypocalcemia.
3. Gastric Analysis. Some allergic cases show achlorhydria and are benefited by administering dilute hydrochloric acid.
4. Sputum. Examination is made for Curschmann's spirals and eosinophilia.
5. Urinalysis should be done routinely.
6. Roentgenogram of the chest. This should be done to determine the presence of pulmonary pathology (tuberculosis, bronchiectasis) and for the purpose of determining the size of the heart in cases suspected of having heart disease.
7. Nose and throat. It is advisable to give every patient with evidence of nasal or pulmonary allergy the benefit of a complete and careful examination pertaining to the nose, throat, and sinuses.
8. Dermatological Examination. Cases suspected of skin allergy should be seen first by a dermatologist to rule out non-allergic skin conditions before an allergic investigation is undertaken.
9. Electrocardiogram. This should be taken in all cases of bronchial asthma where the differential diagnosis from cardiac asthmas is under consideration.
10. Nasal secretions are examined for eosinophiles.
11. Leucopenic index. This determines the leucocyte response to the ingestion of foods to which the individual may be allergic. A drop of 1,000 white cells per c.mm., within 90 minutes after the ingestion of the food, is significant.
12. Determination of the Vital Capacity is important in asthma.

The treatment of the allergic patient is, as a rule, a painstaking and prolonged procedure. Other diseases, such as peptic ulcer, tuberculosis, heart diseases, diabetes, and other chronic illnesses may likewise take time and patience in their control. Unfortunately, too many physicians are still of the opinion that, given an allergic condition such as asthma or urticaria, all that is necessary is to perform a series of skin tests and then to instruct the patient to avoid contact with, and exposure to, those substances to which he is sensitive. Thereupon, it is expected that the patient will promptly improve. This attitude only too often has led to disappointment and discouragement on the part of the patient and has brought about a great deal of scepticism on the part of the profession with regard to the efficacy of allergic procedures. Skin tests are not always reliable and not equally accurate in the hands of different workers. As the first prerequisite one must know the potency of the proteins used in testing, and they must be properly refrigerated and freshly prepared in order to get good results. It is obvious that satisfactory management of the allergic patient really begins upon the completion of an allergic survey.

There have been tremendous advances in the study of clinical allergy in the past decade. Starting as a purely speculative study, this branch of internal medicine has grown to earn for itself a permanent place in the family of medical specialties, as shown by the rapidly accumulating store of medical literature and the appearance of a number of books on the subject, its inclusion in the curriculum of most medical schools, the establishment of well conducted allergy clinics throughout the country, and the existence of national scientific bodies devoted to research and clinical investigation in this field. The importance of this study in the practice of medicine is even more apparent when it is shown that 10% of the population is allergic, and that from 30%-50% of human beings manifest evidence of minor idiosyncrasies.

* * * *

ON THE USE OF EPONYMS IN MEDICINE

One could argue about the raison d'etre of medical eponyms. It is true that they are misapplied at times, and that there are altogether too many of them. In this way they no doubt add to the difficulties of the medical student, especially when several diseases are named after the same man, or more than one person has his name attached to the same disease, diagnostic sign, surgical device, etc. On the other hand, eponyms may well serve as a kind of neutral labeling of morbid conditions not yet fully understood, and in many instances they constitute historical sign-posts along the road of medical progress. Last, not least, they serve to keep alive the names of worthy pioneers in the medical sciences.

* * * *

BUY WAR BONDS

PENICILLIN

(Continued from page 9)

The clinical applications of the above mentioned drugs have been many and varied. The usage has differed for the tyrothricin group and penicillin. Because of the difference in the biologic properties, they are really not comparable in the same fields. Gramicidin has been used locally for clinical purposes by Herrell and Heilman, Rammelkamp, Abraham, and others. Some investigators have tried instillation into cavities, e.g., sinus, peritoneum, bladder, and the pleural cavity. In 1941, Herrell and Heilman reported irregular results with gram positive local infections in man, and asserted that most cases showed a beneficial effect. The important thing reported at that time was that there were no damaging effects and that the healing time was increased. They stressed the importance of using the drug locally.

In 1942, these same authors reported a series of clinical cases treated at the Mayo clinic with tyrothricin. There were 14 cases of sinusitis, 6 cases of cystitis, and 4 empyemas, the remainder being a heterogenous group. Using an assay of tyrothricin of 400 mg. per cc., and varying dosages depending on the infection, they report the following results:

Good results (remission of symptoms and sterile culture) .....43% of cases
Fair results (remission of symptoms) ..25% of cases
Failures .....32% of cases

For the most part the substance was used in cases not lending themselves to other types of therapy.

Rammelkamp (25) gives an excellent discussion of the clinical applications in a recent survey. In 1941, he reported on 51 cases (26) for which he had used tyrothricin. These included empyema, arthritis, ulcers, and mastoiditis. On ulcers, using 50 mg. in alcoholic solution, he got failures with gram negative infections, failures with mixed gram negative and gram positive infections, but got rapid healing with 12 Staphylococcus aureus ulcers. After repeated doses, strains of staphylococcus became tyrothricin resistant. There was delayed healing in ulcers where circulatory damage was apparent. When used on 32 cases of mastoiditis, the results were: (1) all treated ears became sterile for hemolytic streptococcus but staphylococcus infections remained; (2) there were no toxic effects. There were 9 empyema patients, of which 5 were injected after surgical drainage, 4 were injected directly into the pleural cavity. Significant results were seen in only 2 cases. One patient with hemolytic streptococcus infection showed significant improvement after sulfa therapy failed. All others were without demonstrable effect.

Rammelkamp sums up the factors making for effectiveness in the clinical aspects of tyrothricin and derivatives with the following:

1. Tyrothricin is effective only against gram positive organisms.
2. The order of susceptibility is pneumococcus, Streptococcus hemolyticus, Streptococcus faecalis, and Staphylococcus aureus.
3. Various strains show different susceptibility.
4. Tyrothricin is precipitated in body fluids and must come into contact with the organisms in order to act.
5. It does not penetrate into deep wounds, thus limiting effectiveness.
6. Exudation washes substance away, and, therefore there is no action.
7. Serum, pus, and breakdown products inhibit activity.
8. Mixed infections do not react at all. Dubos suggested that the gram negative organisms produce a breakdown inhibitor, which is perhaps a soluble phospholipid.
9. It is effective only locally and when used in picked cases.

The future of tyrothricin certainly seems established in the light of the present investigations. It has already found a place in modern therapeutics, but its toxicity and the limits of effectiveness, as shown above, restrict its use. Perhaps a non-toxic, bacteriostatic fraction will be purified by the investigators and a really potent weapon will be available for the fight against infection.

Penicillin seems to have a wider clinical application than gramicidin. This substance can be given by any route without toxic effects. In strong solutions, it is innocuous to cells and its action is not inhibited by suppurating wounds. Friedgood found encouragement in the report of Abraham et. al. These early investigators found that 200 mg. can be given to man without any ill effects. Intestinal absorption was uncertain, but there was urinary excretion within 6 hours. When given intravenously to man, 50% was recovered unchanged from the urine; the fate of the rest was undetermined. These investigators tried the drug on 6 cases which included osteomyelitis, urinary infections, cavernous sinus thrombosis, local cellulitis, and carbuncles, after all other therapy had failed. They found both general and local improvement in all cases, with no toxic effects. The temperature

had dropped, the leukocyte count diminished, and the spirit of the patient improved.

Herrell and Heilman confirmed and extended the clinical studies of Abraham et al. They found penicillin to have a low toxicity, high bactericidal action, and no hemolytic action. When pyrogen free, it can be used subcutaneously, intravenously, and locally. When used locally, it must be used by duodenal instillation, since it is destroyed by stomach acids. It is best used by slow intravenous drip because of its rapid rate of disappearance from the blood stream. They find penicillin most useful against Staphylococcus aureus, C. diphtheriae, pneumococcus, N. gonorrhea, N. intracellularis, and gas gangrene. Streptococcus faecalis is resistant, Streptococcus salivarius is inhibited, as is Actinomyces bovis. M. tuberculosis is not affected by the drug. In 1942 they reported a case of facial cellulitis, resistant to the sulfa drugs and complicated by a septicemia with Staphylococcus aureus, that was treated with penicillin. Within 22 hours the blood stream was sterile and within 24 hours clinical improvement began. There were no toxic manifestations and no evidence of kidney involvement. The patient made an uneventful recovery in what might have been a fatal case. The dosage here was 30,000 Oxford units in a liter of glucose. First 100 cc. was given, then 30 drops per minute. This is the routine now adopted.

In a recent paper (29), the authors outline the methods utilized and the indications for the use of penicillin. They feel that it is not yet practicable for widespread use except in overwhelming infections. There are still many technical difficulties in the preparation, and it is unstable. They stress the importance of picking carefully the cases for which this type of therapy should be utilized. They assert that the drug is contraindicated in gram negative infections and in infections with M. tuberculosis. Subacute bacterial endocarditis, on a Streptococcus viridans basis, showed inhibition of the coccus in the blood stream. However, as soon as the therapy is stopped, there is a recurrence. Therapy is indicated in infections with Staphylococcus aureus and pyogenes, susceptible strains of pneumococcus, gonococcus intracellularis, gas gangrene bacillus, and Actinomyces bovis. They hold out great hope for the use of the drug in urinary infections, overwhelming sepsis, and the specific infections listed. The future for this drug is yet to be written and there is every indication that its utilization should be thought of now in selected cases. It may yet supplant the sulfa drugs as an antibacterial agent.

BIBLIOGRAPHY

1. Hotchkiss and Dubos, J. Biol. Chem. 141: Oct. 1941.
2. Dubos and Hotchkiss, J. Exper. Med. 73:629: 1941
3. Hotchkiss, J. Biol. Chem. 141: 1941.
4. Tischler, Stokes, et. al., J. Biol Chem., 141: Oct. 1941.
5. Rammelkamp, C., J. Infectious Diseases 71:40-46, July 1942.
6. Rammelkamp, C., Proc. Soc. Exper. Med., 49:346: March 1942.
7. Dubos, Hotchkiss, et. al., J. Biol. Chem., 146:2, Dec. 1942.
8. Gold H., New York Academy of Med. 19:132-50: Feb. 1943.
9. Robinson, Molitor, J. Pharm. and Therap. 74:75, 1942.
10. Special article, Lancet pg. 1172, June 28, 1940.
11. Herrell and Heilman, J.A.M.A. 118:1401, April 1942.
12. Herrell and Heilman, J. Clin. Inves., XX 583-591, Sept. 1942.
13. Abraham, Chain and Fletcher, Lancet 241:177, 1941.
14. Abraham and Chain, Brit. Jour. Exper. Path., 23:123, 1941.
15. Roberts, Chain, et. al., J. Biol. Chem., 147:47, Jan. 1943.
16. Robson, Scott, Nature 149:471:1942.
17. Nature, 146:857, 1941.
18. Chain, Flory, et. al., Lancet 239:241.
19. Powell and Jamieson, Indiana State Med. J., 35: 361, July 1942.
20. Tillet and Cambien, J. Clin. Invest., 22:249, March 1943.
21. Hobby, Meyer, Chaffee, Proc. Soc. Exper. Med., 50:277, June 1942.
22. 50:281, June 1942.
23. 50:288, June 1942.
24. Chaddock, Lancet 1:558, May 9, 1942.
25. Rammelkamp, C., War Medicine, 2:830, Sept. 1942.
26. Rammelkamp, C., J. Clin. Invest., 20:433, 1941.
27. Friedgood, N. E. Jour. of Med., Nov. 19, 1942.
28. Herrell Heilman, et. al., Proc. Staff meet. of Mayo Clinic 17:39, Dec. 1942.
29. Herrell, Heilman, Staff meet. of Mayo Clinic, 18:68, 1943.

Selected bibliography some material of which was used but not quoted:

Proc. Soc. Exper. Biol. and Med., 40:311, 1939.
Dubos, R. J., J. Exper. Med., 70:11, 1939.
McLeod, C. M., Proc Soc. Exper. Med., 43:461, 1940.
McLeod, C. M., Proc. Soc. Exper. Med., 44:444, 1940.
J. Biol. Chem., 13:791, 1940.
Pappenheimer and Hottle, Proc. Soc. Exp. Biol. and Med. 44:645, 1940.
Fleming, Brit. J. Exp. Path., 226:1940.
Chain, Lancet 2:226, 1940.
Florey, Lancet 2:177, 1941.
Lawson, Hobby, and Meyer, J. Bact. 43:11, 1942.
Dawson, Hobby, and Meyer, J. Clin. Inv., 30:438, 1941.
Fleming, Lancet 1:732, June 20, 1942.

* * * *

The following verses attributed to the School of Salerno show a good knowledge of the psychology of the patient:

Don't give your service gratis; let not the wise nurse of Hippocrates
Serve the sick in bed without reward.
For medicine bought dearly benefits much!
If something is given for nothing, no good results.
We are accustomed to give things for things; words for words . . .
A medical rule is given to the physician
That he should say, give, give, until the patient cries oh! oh!
While the patient is suffering
Let the physician be firm in his demand:
Let him ask for immediate payment or get security;
For the faithful pledge deserves the ancient friend.
But if you seek it later, you will be held as an enemy.

* * * *

Talent is that which is in a man's power; genius is that in whose power a man is.—James Russell Lowell.

ENIGMA

(Continued from page 19)

Lobin was almost uncontrollable. His men kept him from charging across the clearing by force. There must have been a score of Japenese snipers just waiting for such a move. He calmed down a little, and crawled over to me, his face white with suppressed rage, and requested to lead the first attack. I granted his request, partly because a refusal would have made no difference.

We laid down a protective barrage of mortar shells, and the lieutenant led the first wave, with the rest of the company closing in behind. By the time we reached the sergeant and cut him down, he was dead.

I never again hope to see a man fight the way Lieutenant Lobin did that morning. We couldn't keep up with him. He had emptied his carbine in the first few minutes of fighting, had picked up a dead Jap's rifle, and was using the extra-long bayonet with terrific effect. It was as if he were giving vent to all the primitive fury that had lain dormant within him throughout his life. He fought skillfully, but with utter disregard for his safety, and with a deliberate ruthlessness that carried everything before him. He must have killed a dozen Japs single-handed in twenty-five minutes. For the first time in the campaign, the enemy in our sector was in full retreat through the jungle. We pressed our advantage, and advanced far enough to consolidate completely our position beyond the airfield.

Jerry Lobin wasn't with us during the last part of the skirmish. He went down wiping out a sniper's nest. When they found him, there were four dead Japs lying nearby, not one with a bullet in him. Lobin had five in him, though. He died while they were carrying him back to the field hospital.

Professor Burns was right about the logic of his main argument, even if he was wrong about the fighting ability of valedictorians. Jerry Lobin's getting killed that way was absolutely illogical and senseless. He was an extremely fine and clever man. Why should he have been allowed to die? But, then, why should anybody have to fight and kill and die? That is illogical too. Sacrifice is illogical. The whole war is illogical, and that is why it is sometimes hard for us, a fairly sane, logical people, to fight it the way it must be fought. It was forced upon us by a morally illogical enemy, and we must fight them with a certain amount of necessary illogicity. Any logical means at our disposal that will help to defeat them must be used. *They cannot be defeated with cold logic alone.*

Professor Burns did not know this. That is why his idea will not work. Jerry Lobin knew this. That is why he was killed. I know it as well as I know anything. But, still, I have to repeat it to myself everytime I think of what a shame it is that brilliance like Lobin's should be destroyed so senselessly—that it is being destroyed, along with so much else, every day. Sometimes I have to repeat it two or three times.

* * * *

BURNS

(Continued on page 14)

every 3 hours the 3rd day; and every 4 hours during the fourth day. By the fourth day a thin, pliable, strong eschar has formed and further spraying is not essential. Active exercise and, where possible, weight bearing, should be encouraged as early as possible to avoid the development of contractures.

Subsequent treatment, within two weeks, the edges of the eschar will begin to separate from the intact epithelium. At this time, compresses of sulfadiazine solution may be applied; or sterile mineral oil sprays, followed by normal saline compresses, may be used to allow the eschar to be removed, if this is indicated in the judgment of the attending surgeon. In all third degree burns, the eschar should be permitted to remain in place for at least 2-3 weeks. Skin grafting must be done where indicated just as in the other type of treatments.

I hope the seriousness and magnitude of this subject has presented something that you can use in your practice of medicine. New methods are being tried daily, not only in civilian life but especially so in military practice. We, therefore, can expect additional improvement in the management of burns.

In conclusion, let me remind you of the importance of the general treatment. Shock must be treated and especially valuable in the treatment is blood plasma. Where dehydration is present one may use isotonic sodium chloride solution, remembering that giving too much is as harmful as giving too little. For the local treatment become acquainted with all methods and then use the one that you are most successful with. Above all never be satisfied with your treatment as long as serious results occur.

Harkins, Henry W., The Treatment of Burns in Wartime; J.A.M.A., May, 1942.
Wakeley; War Burns and the Treatment; Practitioner; Jan. 1942.
Reeves; Management of Burns; Illinois Medical Journal; Jan. 1943.
Ferguson; Surgery of the Ambulatory Patient.
Pickrell, Kenneth L.; A New Treatment of Burns, Johns Hopkins Hospital Bulletin; Aug. 1941.

ASCITES

(Continued from page 6)

Laboratory Findings

Blood—hemoglobin, 57%; R.B.C., 2,888,000 (color index of 1); white blood cells, 7,200; differential count, 77% polymorphonuclear leucocytes, 16% lymphocytes, 7% monocytes, poikilocytosis, polychromatophilia, and toxic erythrocytes were present.

Urine—specific gravity 1.022, some albumin present, no sugar, urobilinogen 4+.

This is evidence of a hepatitis, either on a toxic basis or a cirrhosis.

Diagnosis

Laennec's cirrhosis of the liver.

Treatment

1) Abdominal paracentesis to relieve the ascites, as indicated.
2) Mercupurin, 1 cc., intravenously every other day.
3) High carbohydrate, high protein, and low fat diet.
4) Limit fluids to 1500 cc. per day.
5) Complete withdrawal of alcohol and condiments.
6) Liver orally and liver extract parenterally, to combat the anemia.
7) Nicotinic acid and thiamine chloride, 50 mgm. three times a day.
8) Cevitamic acid, 25 mgm. three times a day.

These three case histories cited by the author are of interest in that the predominant objective symptom, in all of them, was an enlargement of the abdomen due to ascites. These three different cases help to emphasize the importance of the point made in the earlier discussion of ascites as a symptom and not a disease. They illustrate the point made of the variety of conditions that may produce an ascites and, therefore, emphasize the importance of a complete medical work-up in each patient in order to make a correct diagnosis.

The author has not included, in this discourse, any discussion on ascites due to inflammatory products, as in tuberculosis, sepsis, or ascites due to malignancy.

* * * *

In about 2400 B. C. a certain Iri (of Egypt) was named as chief of the court physician, with the quaint title of "Shepherd of the Rectum."

* * * *

BUY WAR BONDS

TUBERCULOSIS

(Continued from page 15)

Of the 15 negative students 14 were vaccinated with BCG and shortly thereafter on testing with tuberclin were shown to have become positive. At the end of their period of residence, 2 years and 3 months, retesting with tuberculin, 42 of the original 47 positive students showed 40 to have remained in that state, 1 person became negative and 1 now had only a questionably positive reaction even on repeated testing with 1/100 dilution of OT. This illustrates the not generally known phenomenon that an individual originally positive does not necessarily remain so. The explanation that the initiating focus heals to the point that the contained tubercle bacilli are dead and, therefore, the tuberculin sensitivity disappears, seems to be adequate.

Of the 14 students who received BCG, 13 were in residence for the full period and all were postive, 2 years and 3 months after the vaccination.

One student who was negative and who was not vaccinated was found to be postive to tuberculin. An X-ray of his chest revealed a primary complex and no evidence of progression.

The roentgenograms taken of this group were not very satisfactory statistically, but certain information of a positive nature was obtained. During the first academic year 22 X-rays were taken, during the second year 59 X-rays, and during the third year 51 X-rays. There was no evidence of moderate or far advanced tuberculosis. In 9 cases pathologic shadows were seen indicating a minimal process. In one case which showed apical mottling the lesions had disappeared 6 months later with no cessation of normal activities required. In 5 of the others repeat films showed the questionable lesions to be fixed in character. In the remaining 3, repeat films were not obtained. Of the original 9 cases, 8 were among unvaccinated, originally tuberculin positive, students and 1 was a student who had received BCG.

It is to be emphasized that all of these lesions were extremely minimal, none showed clinical activity, and the follow-up study on these cases is essential before conclusions of any type may be drawn.

* * * *

The story of "the wife of a goldsmith named Menache who was buried with all her jewels. During the night a beggar attempted to steal the jewelry and made such exertion in exacting one ring that the woman recovered. . . . After this . . . she had several children." (Treat 'em rough.)

A. C. SWINBURNE (1837-1909)

Bizarre in mental and physical make-up, Swinburne presents another interesting study in abnormal psychology. He was subject to a singular kind of seizure, possibly of an epileptic nature. Once, such a fit occurred in the reading room of the British Museum and he had to be carried out. He may have been more the victim of dissipation and drink than of disease, and undoubtedly these habits influenced his poetical expression to a certain extent.

* * * *

We are here to add what we can to, not to get what we can from, Life.—Sir William Osler.

* * * *

He knows little who will tell his wife all he knows. —Thomas Fuller.

* * * *

BRYANT'S SIGN (Thomas Bryant—1828-1914)

There is also an ampulla, triangle, and line bearing the name of Bryant. He was a prominent surgeon of the Victorian era. New and original illustrations, red and blue coloring respectively for arteries and veins, and the quoting of references to previous authors, were innovations in his "Practice of Surgery" that won immediate acclaim for the book.

* * * *

WILLIAM BLAKE (1757-1827)

The forebodings and illusions with which William Blake was troubled present an interesting study in neuropsychiatry. His art and writings transmit, by their very strangeness, the visionary aura which he claimed to possess. Ill health, poverty and neglect were his lot. Yet this creative poet-painter held imaginary discourses with such as Swedenborg, Milton and Dante; biblical personalities posed for him, he witnessed the funerals of fairies—and was happy in his world of substitute reality.